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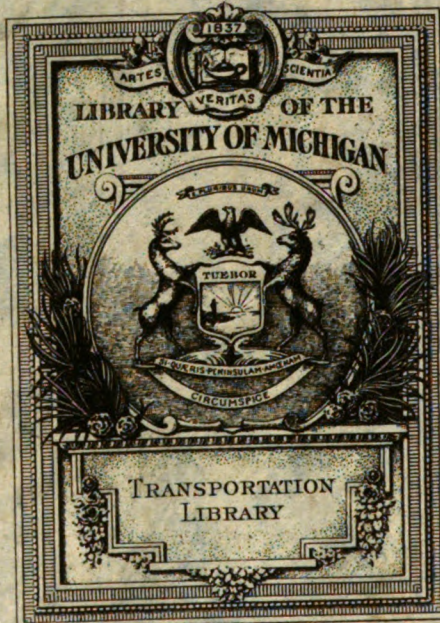
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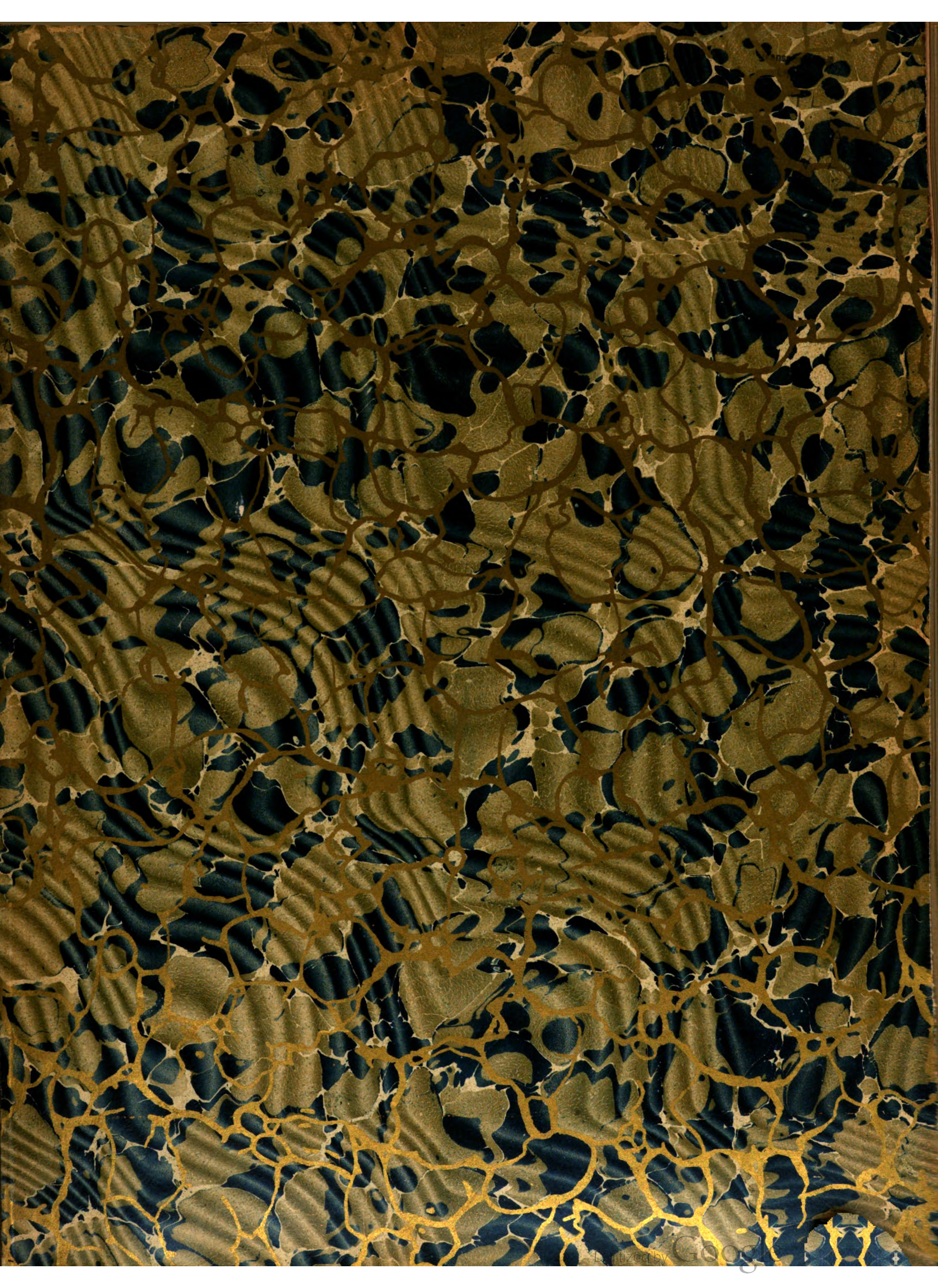
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THE MOTOR WORLD

Vol. XXVIII.

New York, U. S. A., Thursday, July 6, 1911.

No. 2

WILLYS AND GARFORD JOIN HANDS

They Form a New Selling Corporation with Willys as President—Garford Cars for Overland Agents.

While other matters of moment have been shaping themselves in the industry, John N. Willys and Arthur L. Garford, who have left such plain marks in it, have not been idle. Each saw wherein he could be of benefit to the other, and after some two months of negotiation, the Willys-Garford Corporation has been brought into being, the transaction finally having been consummated yesterday.

It is an important transaction, and one that will cause widespread surprise, but it does not entail all that the title of the new company suggests, for the Willys-Garford Corporation will be a selling company pure and simple, and has for its purpose the marketing of Garford cars and trucks through the Willys-Overland agents. The Garford Co. and the Willys-Overland Co. will remain separate and distinct entities, and each will continue to conduct its manufacturing operations in its own way.

The Willys-Garford Corporation, whose headquarters will be in Toledo, will have a nominal capital of \$10,000, held share and share alike by Willys and Garford, but the actual conduct of its affairs naturally will be in the hands of the Willys staff. John N. Willys himself will be president of the corporation, George W. Bennett, his right hand man, will be vice-president and general manager, and Walter Stewart, treasurer of the Willys-Overland Co., will be secretary and treasurer.

Without conflicting with existing Garford agents they will market the entire product of the Garford factory and the arrangement will give to the Willys-Overland agents the big, impressive cars and commercial vehicles which, with the Overland line at lower prices, will permit them to meet any demand which may arise. In fact, most of

the Overland agents have felt the need for such cars in limited numbers and hitherto have been forced to turn away such orders; with Garford cars and trucks at their command they need do so no longer, and as all of the Garford productions are thoroughly seasoned and of the highest class and as the Willys-Overland agency system is one of the most extensive in the industry, that the transaction should prove mutually attractive is not wholly strange.

Banker Meyer Becomes U. S. Director.

Eugene Meyer, Jr., of Eugene Meyer & Co., has been elected a director and chairman of the finance committee of the United States Motor Co., succeeding Richard Irvin in the latter position. Eugene Meyer & Co. are the New York bankers who organized the syndicate which underwrote \$6,000,000 of the recently authorized debentures issued by the United States Motor Co. and who also had to do with the purchase of the E. R. Thomas Motor Co., of Buffalo, by the new company of that name.

May Make French Carbureter Here.

As the result of a visit to this country by Antonin Boulade, general manager of the Societe du Carburateur Zenith, the Zenith Carburetter Co. has been organized under the laws of Michigan, with \$10,000 capital, and has established a temporary office in the Volksblatt building in Detroit. Later it is probable that a plant will be secured and the carburetter manufactured on this side of the water. Victor R. Heffer will be the manager of the American company.

American Distributing Gets Barnes Gear.

The American Distributing Co., of Jackson, Mich., has taken over the sales agency for the products of the Barnes Gear Co., of Oswego, N. Y. Previously the account was handled by the Centaur Motor Co.

Ford, of Canada, Pays 100 Per Cent.

The Ford Motor Co., of Canada, which operates in Walkerville, Ont., has again declared a 100 per cent. cash dividend. It paid the same amount last year.

TWO ADOPT THE KNIGHT ENGINE

Stearns and Columbia Make Formal Announcements—Stearns Abandons Poppet Valve—Equipments Featured.

After several years, the Knight engine has found honor in its own country. Two of the four American manufacturers whom The Motor World several months ago indicated were preparing to make use of the engine have made formal announcement of the fact. They are the F. B. Stearns Co., of Cleveland, Ohio, and the Columbia Motor Car Co., of Hartford, Conn., and the Stearns company thinks so highly of the sliding sleeve principle that, as evidence of faith, it has burned all of its bridges behind it; which is to say that it has wholly cast out the poppet-valve motor and henceforth will employ only the Knight engine. The Columbia company, on the other hand, will continue to produce cars mounting the poppet valve; the Knight engine model will constitute but one car in its line.

The Stearns motor, which is of the long stroke type, will be rated at 28 horsepower, but will develop 50; the Columbia is rated at 38, but will develop 70. While the latter will be made from imported castings and will be a duplicate of the Knight-Daimler, the Stearns engine will be made wholly in the Stearns shops and will include several features which the Stearns people themselves originated. They are dealt with elsewhere in this issue. The Stearns car will be listed at \$3,500; the Columbia at \$4,500, and these prices include unusually generous equipment. In the case of the Stearns it includes demountable rims, top, windshield, Klaxon horn, trunk rack, electric generator and a complete equipment of electric lamps, including even a tonneau lamp. The Columbia-Knight will be provided with demountable rims, shock absorbers, power tire pump, trunk rack and electric lights.

While the adoption of the Knight engine by both of these well-known companies nat-

urally has created a great wave of comment, the radical action of the Stearns company in entirely casting loose from the poppet valve has caused a general "sitting up."

"Our action speaks for itself," said President Stearns, when the fact was remarked. "We would not dare burn our bridges behind us did we not know our engine and know that it has abundantly and convincingly proved itself. We were doubters when first we took it up, and we have been convinced beyond our will. But two years' experience with it, during which we ourselves spent \$75,000 in perfecting it, has left not a trace of doubt of its superiority in our minds. We believe we have an engine which is not short of wonderful and are certain the future will demonstrate it."

Despite the persistency with which the Knight engine has been kept before the public during the last five years it is still comparatively unknown in this country. Abroad it is better known, six manufacturers at present having it in use. They are the producers of the English Daimler and Rover cars, the German Mercedes, Belgian Minerva, French Panhard and Italian Daimler cars. In Canada it also is used in the Russell cars. This development has taken place within the last three years, during at least two of which a number of American concerns have been studying the qualities of the Knight construction and testing the performance of the engine in various ways.

While much of the credit for its introduction has been claimed by the Daimler Motor Co., Ltd., of Coventry, Eng., the Knight engine really is an American product. Charles Y. Knight, its inventor, is a Chicagoan, or was for many years, and in February, 1906, the Silent Knight car first made its appearance at the Chicago show. This car was equipped with the original Knight engine and was made by the firm of Knight & Kilborne. The following year the car again made its appearance at the Chicago show, its construction having been slightly modified in the meantime. During the two years, 1906 and 1907, the activities of Knight & Kilborne were carried out in a very limited way, a few cars being made and the machine being exploited with fairly creditable results in a number of local hill-climbs.

Within a year of the second appearance of the Silent Knight at the show, however, Knight himself packed his trunk, rolled up a lot of blue prints and took ship for England. There he found the Daimler company willing to listen to his project and eventually succeeded in persuading it to adopt the engine, and incidentally to employ him to develop its construction. When its decision to make the Knight engine a standard feature was announced in September, 1908, the Daimler directorate apparently was in an extremely venturesome mood, for it also declared its intention of producing a front drive motor cab, which, however, failed to make its appearance.

SIX MONTHS OF GENERAL MOTORS

Financial Statement for that Period Indicates Flourishing Condition—New York Exchange Lists Notes.

Concurrent with the listing of its first lien 6 per cent. four year notes on the New York Stock Exchange, the General Motors Co., has made public its financial condition for the six months which ended March 31, 1911. The consolidated statement of profit and loss for that period is as follows:

	Gen. Mot. Co.'s Stockholding Total Proportion	
Gross profit	\$4,387,968	\$3,829,542
Selling, administration, and general expenses	1,142,394	1,068,217
Operating profit	3,245,573	2,761,325
Other income	182,166	170,714
Total income	\$3,427,739	2,932,039
Interest on S. K. notes.....	450,000	450,000
Surplus	\$2,977,739	2,482,039
Previous surplus		1,349,789
Miscellaneous income		183,816
Total		\$4,015,644
Preferred dividends		890,267
Sundry charges		327,883
Profit and loss surplus.....		\$2,797,494

The condensed consolidated balance sheet of the company and its subsidiaries as of March 31, 1911, follows:

Assets.	
Real estate, plant and equipment.....	\$15,253,870
Patents, agreements, etc.....	1,815,719
Miscellaneous investments	506,140
Cash in banks and on hand.....	3,718,521
Notes and accts. receivable.....	4,230,347
Deferred charges	40,976
Manufactured products, finished or in process, materials and supplies.....	23,860,276
Good will, excess of appraised value over book value of stocks of subsidiary companies owned	14,853,855
Total	\$64,279,709

Liabilities.	
Preferred stock issued.....	\$18,038,400
Less in treasury:	
Gen. Motors Co. \$1,882,000	
Subsidiary cos. 1,734,100	3,616,100
Common stock issued.....	19,874,030
Less in treasury:	
Gen. Motors Co. \$3,728,500	
Subsidiary cos. 321,900	4,050,400
Five-year skg. fd. 6% gold notes	15,000,000
Outstanding capital stock...	1,510,270
Surplus to same.....	1,216,239
Notes and accounts payable.....	6,508,185
Reserves	7,001,590
Surplus	2,797,493
Total	\$64,279,709

The company has already paid to the Central Trust Co. under the mortgage agreement \$1,000,000 in advance of the actual sinking fund requirements of \$1,500,000 due next October, and has \$5,000,000 cash in hand which is being used to take advantage of discounts in purchasing materials.

Actual receipts from the sale of cars have

averaged well over \$1,000,000 every week from January 1 to June 16, the latest reported, and orders on hand as of the latter date, for immediate cash delivery, totaled more than \$4,000,000.

It is estimated that the gross sales for the fiscal year ending October 1, 1911, will be \$59,000,000 and the net profits, \$9,500,000. For the same period of 1910, the sales amounted to \$58,500,000 and the profits to \$10,266,322. For 1909, the totals were \$34,000,000 and \$9,257,151, respectively.

Changes Among Prominent Tradesmen.

Paul Picard has been appointed western sales manager for the Fiat Automobile Co. He will make his headquarters in Chicago.

Alexander Dow, former president of the Dow Rim Co., has joined the staff of Wyckoff, Church & Partridge. He will be attached to the New York sales department.

H. W. Bigelow, who for the past two years has been chief accountant for the Hartford Auto Parts Company of Hartford, Conn., has been promoted to the position of supervisor of purchases and sales.

N. H. Minter, formerly special representative of the Stromberg Motor Devices Co., of Chicago, who is "away up" in carbureters, has been advanced to the post of sales manager. E. N. Hynes, who previously was connected with the Stewart & Clark Mfg. Co., has been made chief auditor of the Stromberg company.

Tracy Lyon has been appointed production manager of the General Motors Co. and will have direction of all the plants included in that organization. Lyon at one time was general superintendent and later assistant general manager of the Chicago & Great Western Railway, but more recently and for nearly five years, was production manager for the Westinghouse Electric & Manufacturing Co.

James C. Young, secretary-treasurer and general manager of the Madison Square Garden Co., has been elected vice-president and general manager of the company controlling the new Grand Central Palace in New York. He succeeds Marcus Nathan, resigned. Since their inception, Young has been intimately connected with all of the automobile shows held in the Garden, and now that that historic building is to be demolished, the transferral of his activities to Grand Central Palace conveys its own significance.

A. E. Morrison has been appointed factory director of the Cole Motor Car Co., of Indianapolis, and will rank immediately next to J. J. Cole, president of the company. A few years ago Morrison was widely known in the East, when he first was sales manager for the Peerless Motor Car Co., in Cleveland, and later manager of its New England branch in Boston. His health required that he seek the California climate, since which time he has been sales manager for the Pacific Motor Car Co., of San Francisco, the Cole agents in that city.

NO SIGNS OF EXPORT SHRINKAGE

Statistics for May Show Increased Appreciation of American Cars—Canada Nearly Doubles Its Purchases.

Continued soaring on the part of American automobiles and parts brought the total value for the month of May, last, up to \$1,857,426, of which \$1,513,547 represents the value of 1,466 cars, while \$343,879 is the worth of component exported. The total is \$150,000 more than that for May, 1910.

Canada continues to be the heaviest purchaser of American cars, its takings during May, \$1,107,106, exceeding that of the United Kingdom, the next largest buyer, by more than \$900,000, and representing an increase over May, 1910, requirements of \$442,699. While the United Kingdom still remains second in line, however, its demand fell off to the extent of \$280,000, in round numbers. British Oceania, on the other hand, required \$97,570 more automobile wares than during May, 1910, while the South American market has appreciated to the tune of some \$83,000. The West Indies and Bermuda and the group "other countries" also increased their purchases. Heavy losses were sustained by France and Germany, while Italy, "Other Europe," Mexico and Asia and "Other Oceania" also reduced their purchases.

During the 11 months ending with May, 10,249 cars were exported, as against 5,942 in 1910 and 2,607 for the corresponding period of 1909. The total value of \$13,481,471 was greater by \$4,186,056 than that of the corresponding period of 1910, and greater than that of 1909 by \$8,605,135. In the 11 months' comparison all of the territorial divisions except France, Italy and the West Indies and Bermuda reveal gains. Canada's increase is the greatest, approximating \$2,200,000. British Oceania's gain of roughly \$287,000 is next in order, and that of South America third. In the aggregate the losses of the three falling markets were more than counterbalanced by British Oceania's gain; i. e., Italy, \$122,927; France, \$90,231, and West Indies and Bermuda, \$35,684. The report in detail:

Abbott Increases Capital to \$1,000,000.

The Abbott Motor Co., of Detroit, has increased its capital stock from \$300,000 to \$1,000,000, more than \$500,000 of the new issue being immediately subscribed by the present shareholders. Most of it was taken by the syndicate of eastern capitalists who own the controlling interest in the Abbott company, comprising C. W. Jamieson, president of the company; Senator F. M. Knapp, first vice-president; H. M. Preston, second vice-president, all of Warren, Pa., and W. S. Hoskins, of Weston, W. Va. The board of directors, however, remains the same, viz., C. W. Jamieson, president; F. M. Knapp, first vice-president; H. M. Preston, second vice-president; W. S. Hoskins; Wade Millis, secretary; M. J. Hammers, treasurer and general manager.

May not a Merry Month for Imports.

Only 75 foreign automobiles were imported into the United States during the month of May last, as against 83 for May, 1910. The total value of imports for the month, including parts, was \$205,892, as against \$251,649 lyast year. France has experienced the greatest market shrinkage, sending 26 cars last May, as against 43 in May, 1910, while the United Kingdom sent in 19 cars this year, as compared with only five one year ago. This was the only exception to the "shrink rule," however. During the 11 months ending with May, 771 cars, valued at \$1,642,329, were received at American ports, as against 1,359 cars, valued at \$2,618,217, which were sent in during the corresponding period of last year.

Kissel Prepares to Enlarge its Plant.

The Kissel Motor Car Co., of Hartford, Wis., has purchased another acre adjoining its present property and already has let contracts for the first of two additions, which will be made to its plant. It will be a four-story brick structure, 100x200 feet, which will be ready for occupancy by November 1.

Cartercar Enlargement in Progress.

Work has been commenced on a brick and steel addition to the plant of the Cartercar Co., in Pontiac, Mich. It will afford 10,000 square feet of floor space.

FOR SHORTENING OF SHOW SEASON

Representative Manufacturers Express Approval of Proposal—One Week in New York and Chicago Sufficient.

That the trade has wearied of the long show season which is visited upon it each winter and which seriously interrupts and disturbs the regular order of business for nearly two months, and will welcome any one or anything that promises relief, was fairly well known to those in touch with the trade. But until the Motor World, in its issue of June 22nd, presented the ideas of some of those who believe that action of some sort looking towards the shortening of the season is imperative, the real strength of opinion on the subject largely was a matter of speculation.

That these opinions are likely to lead to the concentration of the shows in New York and Chicago into one week each is quite probable, for those responsible for the suggestion that the cars and the trucks be exhibited during the same week, in two, three, or more buildings, if necessary, are in a mood that is likely to bring matters to a focus much more quickly than may appear to be the case.

In an endeavor to discover the temper of the trade on the subject, the Motor World, without attempting a thorough canvass, obtained the opinions of a sufficient number of men prominent in the several branches and these cannot but add momentum to the movement to shorten the show season which now is under way. Among those who were not unwilling to be quoted were the following:

Charles T. Jeffery, president Thomas B. Jeffery Co.—"The automobile shows are not infrequently referred to as necessary evils. Two national shows of pleasure cars—one in New York and one in Chicago—should not be looked upon entirely as evils, for with exhibitions in both places such as that in Chicago, public interest is certainly stimulated and interest kept alive and created which would otherwise die out much quicker.

"The advantage gained to a manufacturer by the stimulation of interest is such as to warrant the trouble necessary for one week exhibition in both places, but the advantage gained through an additional week hardly offsets that lengthened interruption to the usual routine.

"We should very much favor the exhibition of commercial vehicles in Chicago during the same week as that of pleasure cars, and one general show of all pleasure cars and commercial vehicles during the single week in New York; such exhibitions, if necessary to obtain sufficient room, to occupy various buildings, even though set apart. Aside from the time saving to the manufacturers of such a plan, it would seem

	May		Eleven months ending May		
	1910	1911	1909	1910	1911
Automobiles and parts of—					
Automobiles	\$1,491,497	\$1,513,547	\$4,340,165	\$7,910,379	\$11,262,177
Parts of (not including tires) ...	208,603	343,879	536,171	1,385,036	2,219,294
Exported to—					
United Kingdom	487,267	203,539	1,375,815	2,038,843	2,066,297
France	101,549	71,922	483,037	584,404	494,173
Germany	72,442	19,972	94,602	227,235	231,743
Italy	29,633	22,125	214,994	319,451	196,524
Other Europe	173,802	89,554	270,834	420,889	646,732
Canada	664,406	1,107,105	1,405,079	3,721,862	5,912,794
Mexico	45,262	11,990	369,372	501,219	608,805
West Indies and Bermuda	12,166	27,436	248,786	406,553	370,869
South America	21,438	104,172	135,348	296,558	792,093
British Oceania	12,243	109,813	111,255	319,555	1,146,402
Asia and other Oceania	64,455	61,756	89,196	310,198	733,769
Other countries	15,437	28,042	78,018	148,648	281,270
Total	\$1,700,100	\$1,857,426	\$4,876,336	\$9,295,415	\$13,481,471

to assure a larger attendance at the commercial vehicle exhibit."

Albert L. Pope, president, Pope Manufacturing Co.—"The shortening of the show season is a subject in which I am very much interested, and is one that I think concerns the whole industry. I will sum up my ideas on this matter in as few words as possible. I fully believe that the National Association of Automobile Manufacturers should conduct all the shows that are held in New York and Chicago in the future, beginning this year, if possible; that some arrangement should be made with the board of trade by which the National Association could take the lease of Madison Square Garden off its hands, and that as there is not sufficient space in Madison Square Garden that other buildings should be hired, so that the exhibition of pleasure cars, trucks, motor bicycles and accessories can be held in one week. That is sufficient time for every one to see all they wish, and will make it much less expensive for the manufacturers and dealers. They will be enabled to get all the information they require in that one week without the necessity of going again to see the trucks. I shall use all the influence I have to have the show matters settled as above."

Benjamin Briscoe, president, United States Motor Co.—"Allow me to express our approval of the plan for shortening the show season, if it can be successfully carried out. Every automobile manufacturer would gladly see the show season reduced. We believe in shows and will continue to believe in them just as long as they are supported by the general public; following which undoubtedly will come those strictly trade shows such as other industries support."

"The difficulty, however, of shortening the show season lies in the inability to get big enough buildings to properly house our great industry. Last year at Madison Square Garden some eighty automobile concerns took all the space available the first week, and even then each company had to accept a smaller amount of space than was actually needed. Then followed the commercial vehicle show for one week, which this winter should be a show of as great proportion as the one offering pleasure cars."

"The ideal situation would be to have two buildings in New York, one in which pleasure vehicles could show for one week, while the other building could care for the commercial vehicles during the same period, all the representative companies being given space. This much desired condition may be brought about by the erection of new buildings in New York and Chicago, but it hardly seems possible under existing conditions. As a matter of fact, there are no two buildings in any city of this country that can properly house in a single week this great American industry of making motor cars."

Charles G. McCutcheon, president Amer-

ican Gear & Manufacturing Co.—"As parts makers, we long since gave up the idea of exhibiting parts at the shows. As a matter of fact the car manufacturers have usually determined upon the purchase of all the parts to be used in their current models before the shows are held, and the benefit derived from exhibiting at these shows is entirely out of proportion to the expense incurred, except it may be in the case of a new and unknown manufacturer."

"Please understand that this attitude applies only to the mechanical parts used in the construction of cars, such as engines, transmissions, axles, springs, frames, etc., and not to accessories, which are of considerable interest to the intending purchaser of cars. We presume the accessory makers derive some benefit from the shows. Undoubtedly the manufacturers of cars find in the shows a good method of exploitation."

"It certainly seems that if the shows can be consolidated and two national representative shows held each year, one in New York and the other in Chicago, that the purpose of these shows would be fully served by making them of one week's duration in each city. We believe the trade generally would entirely approve of the limiting of time spent on these shows to one week each. We believe that practically as much good would be accomplished by shows of one week's duration and at approximately half the expense of shows lasting two weeks. We think there is no question but that people sufficiently interested to attend the shows could very well manage it in one week's time. The extension of these shows beyond one week not only means a great expense in money cost, but even a larger expense in the loss of time and to the general interruption of business at the factory."

Charles Clifton, treasurer, Pierce-Arrow Motor Car Co.—"I can only say Amen to all that is said by the Motor World in its issue of June 22 regarding the shortening of the show season."

D. W. Henry, general manager, Colby Motor Co.—"I heartily agree with the suggestions regarding shortening up the shows and believe it is the best thing for all automobile shows and dealers throughout the country to have one big show in New York and one big show in Chicago, lasting one week in each place. I for one would be very thankful to see it carried out."

H. Hess, general manager, Franklin Automobile Co.—"We are strongly in favor of one-week shows."

H. Krohn, sales manager, Paige-Detroit Motor Car Co.—"We are heartily in favor of shortening the show season. We believe that one week both at Chicago and New York is sufficient, and all manufacturers will accomplish the same results with less time wasted, and we trust that this thing will be brought about."

C. C. Hanch, treasurer, Nordyke & Marmion Co.—"In my opinion, one week is certainly enough. If space is available, I believe that every reputable manufacturer,

and all kinds of vehicles, should be let in at the same time."

F. Hallett Lovell, Jr., president, Lovell-McConnell Manufacturing Co.—"It is our opinion that the shows should not be more than one week and that the whole show season should be entirely shortened. Business is practically blank in the month of January, all due to the show proposition. We would rather prefer that the automobile shows should be discontinued altogether, from our standpoint."

William E. Metzger, secretary and treasurer, Metzger Motor Car Co.—"Provided suitable buildings of suitable capacity can be found in New York and Chicago. I heartily concur with your sentiments as expressed in The Motor World's articles regarding the national shows in your issue of June 22, and believe that one week only should be given New York and Chicago, and that these shows should follow each other with as small elapse between them as possible. A manufacturer should not be burdened with show troubles for over a period of three weeks. I hope that this idea will be effective for the shows of 1913."

Wm. Sparks, secretary-treasurer, The Sparks-Withington Co.—"The automobile shows certainly should be cut to one week only. Judging from our experience last year the second week of the show is an unnecessary expense. Therefore, it seems to me that the management should try and provide a building large enough in which the show could be divided into two sections, one for pleasure and the other for commercial vehicles to be shown at one and the same time. We really hope this can be brought about."

E. W. Lewis, secretary and treasurer, Timken-Detroit Axle Co.—"We have read with interest The Motor World's article bearing on the show question. We could hardly add a single word to the opinion taken regarding same. It covers our case thoroughly; in other words, at least not as far as we are concerned, we do not want to see more than two national shows, and each should not extend beyond a week."

"We feel that we have to attend these shows, although we have nothing to sell the public, and it is certainly not a propitious time for use to show our goods to the motor car builder, as he is busy selling his cars. While we cannot afford to drop out of the two national shows, we think this is practically the same way every accessory company looks at the question."

E. P. Hovey, advertising manager, C. F. Splitdorf, Inc.—"We have read the editorial of The Motor World regarding the shortening of the show season and most heartily say Amen to every word it contains. There is very little for us to add, as your editorial meets our views exactly. One show of a week's duration is enough."

Wm. Gray, Gray & Davis—"If it were possible to have the show last about three days and one night it would please me very much."



William E. Dunbar has opened a garage in Manchester, N. H.

D. S. Hayward has begun the erection of a garage in St. Cloud, Minn.

The Carson Garage & Auto Co., of Peru, Ind., has filed notice of dissolution.

C. H. Adams is erecting a concrete garage on Chestnut avenue, Waterbury, Conn.

The Brooks Motor Co. has taken possession of its newly completed garage on West Broadway, Muskogee, Okla.

A. V. Stimler has opened a fire-proof garage at Foley, Minn. It includes a fully equipped repair department.

A new garage and repair shop has been opened by W. S. Brown in Wilkesbarre, Pa. It is located at 156 West River street.

The Goodyear Tire & Rubber Co. has entered suit in the District Court at Hutchinson, Kan., against the Sellers Motor Car Co., to recover \$4,120.43, alleged to be due on a note, and \$3.86 protest fee.

Ground has been broken for a modern garage at North Second and G streets, Tacoma, Wash. The building will cost \$10,000. When finished it will be occupied by Jesse O. Thomas, Jr., the owner.

Ernest Johnson, a Berkley Springs (W. Va.) liveryman, will abandon the care of horses for the automobile. On the site of his old stable, on Main street, he is preparing to erect a modern fire-proof garage.

Rochester, N. Y., is to have still another garage. It will be erected by George W. Hastings, at a cost of \$22,000. The building will be a three-story brick structure, with entrances on both Court and Courtland streets.

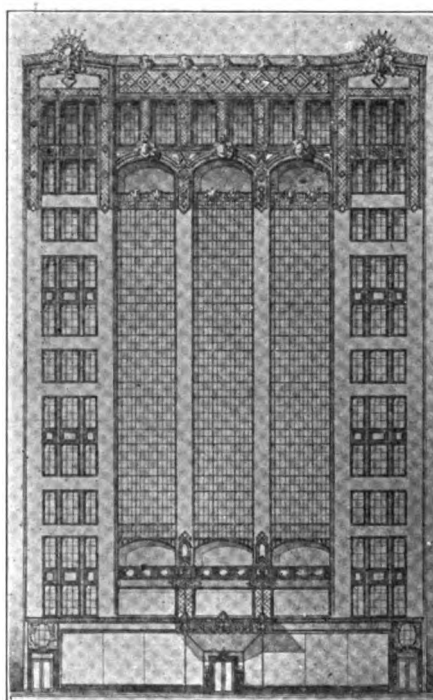
Ralph C. Hamlin has let contracts for the erection of a three-story fire-proof garage and salesroom in Los Angeles, Cal. It will have a frontage of 50 feet on Oliver street, near Tenth street, and a depth of 158 feet. It will house Franklin automobiles exclusively.

John S. and Daniel A. Harrington, who, under the style The Harrington Automobile Co., maintain stores in Worcester, Mass., and Providence, R. I., have formed a new firm, Harrington Bros., and will open another store in the Copley Square district of Boston. They will handle the Everitt line.

The Firestone Tire & Rubber Co. has leased the premises 724 Main street, Buffalo, N. Y., which early in July will be opened as a factory branch—the thirty-fifth link in the Firestone chain. The new depot will be in charge of Raymond W.

Phelps, hitherto connected with the Firestone branch in New York City.

Joseph Holloway, principal owner of the Holloway Automobile Agency in Wheeling, W. Va., has purchased the interest of Julian Hearne in the Hearne Motor Car Co., located at Fifteenth and McCollough streets in the same city. The business of both hereafter will be combined under the style the Holloway & Hearne Motor Car Co., with J. Holloway and Thomas McK. Hearne as the partners. The new concern will continue to handle the National and Reo cars.



LOCOMOBILE'S NEW SERVICE BUILDING.
To be Erected in New York City on 61st Street,
Near Broadway.

J. I. Handley, president of the American Motors Co., of Indianapolis, and Charles E. Reiss, of Charles E. Reiss & Co., New York distributors of Marion cars, have incorporated the American-Marion Sales Co., under the laws of New York, and the new concern, which is capitalized at \$100,000, will henceforth handle both cars in the metropolitan district. The Marion being a popular priced car and the American, which set the fashion in the underslung types, being a big, impressive creation, will permit the Sales company to meet the demand for either kind.

Recent Losses by Fire.

Ridgefield Park, N. J.—The Motor Repair Co.'s garage, Bergen avenue, burned; four cars destroyed. Loss, \$10,000.

Greenville, S. C.—Eugene F. Bates' garage, North Main street, damaged; eight cars and other contents destroyed. Loss, \$12,000.



Detroit, Mich.—Zenith Carburetter Co., under Michigan laws, with \$10,000 capital. Corporators—Victor R. Heftler, of Detroit; Antonin Boulade, Lyons, France.

Jackson, Miss.—Velie Motor Sales Co., under Mississippi laws, with \$10,000 capital; to deal in motor vehicles. Corporators—H. K. Hardy, H. D. Hardy, W. P. Hardy.

Boston, Mass.—A. S. Brock Rubber Co., under Massachusetts laws, with \$25,000 capital; to manufacture all kinds of rubber goods. Corporators—A. S. Brock and others.

Danville, Ill.—Inland Supply Co., under Illinois laws, with \$35,000 capital; to manufacture machinery and motors. Corporators—H. C. Yelon, O. Finney, G. Harroun, all of Danville.

Bloomington, Ill.—Gillett Vulcanizing Co., under Illinois laws, with \$2,400 capital; to repair and deal in automobile tires, rubber goods, etc. Corporators—C. M. Gillett, K. P. Phares, F. M. Roosa.

Decatur, Ill.—Gillett Vulcanizing Co., under Illinois laws, with \$2,400 capital; to repair and deal in automobile tires, rubber goods, etc. Corporators—Robert R. Munsie, Walter H. Weaver, C. M. Gillett.

New York, N. Y.—Auto Trucking Co., under New York laws, with \$10,000 capital; to deal in and rent automobiles, delivery cars, etc. Corporators—Samuel Simmons, Henry Frohwitter, Samuel Steiner.

Indianapolis, Ind.—Merchants' Electric Auto Co., under Indiana laws, with \$50,000 capital; to deal in automobiles. Corporators—H. B. Stout, M. L. Darrow, J. E. Spiegel, C. P. Tighe, H. B. Stout, Jr.

Chicago, Ill.—Chicago Motor Transportation Co., under Illinois laws, with \$100,000 capital; to do general automobile and auto livery business. Corporators—John J. Nolan, Arthur Bird Haven, Peter Sinclair.

Manteno, Ill.—H. Smith & Sons Co., under Illinois laws, with \$20,000 capital; to manufacture and deal in motor vehicles. Corporators—Samuel J., Joseph O., Raoul E., Edward E., Napoleon and Armand E. Smith.

Yonkers, N. Y.—Lowa's Garage, under New York laws, with \$30,000 capital; to manufacture and deal in automobiles, supplies and accessories. Corporators—W. Lowa, W. Lowa, Jr., C. W. Lowa, all of Yonkers.

Increases and Decreases of Capital.

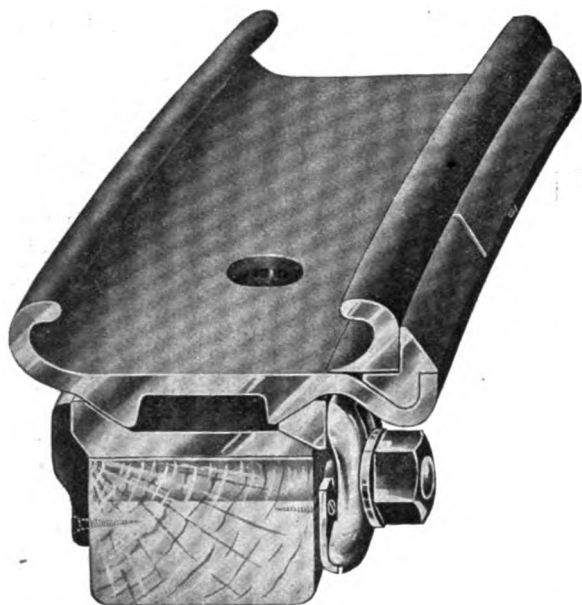
Detroit, Mich.—Abbott Motor Co., from \$300,000 to \$1,000,000.

Port Huron, Mich.—Lauth Auto & Engine Co., from \$50,000 to \$20,000.

"Firestone"

Quick-Detachable and Quick-Detachable Demountable RIMS

"The Lightest Practical Rims Made"



Quick-Detachable Demountable Clincher Rim

The all important requisites of a real dependable rim—the features you must consider—are embodied in their entirety in Firestone rims for

1912

**Greatest Possible Strength—
Least Possible Weight—
Simplicity and Speed of Operation—
and Absolute Safety**

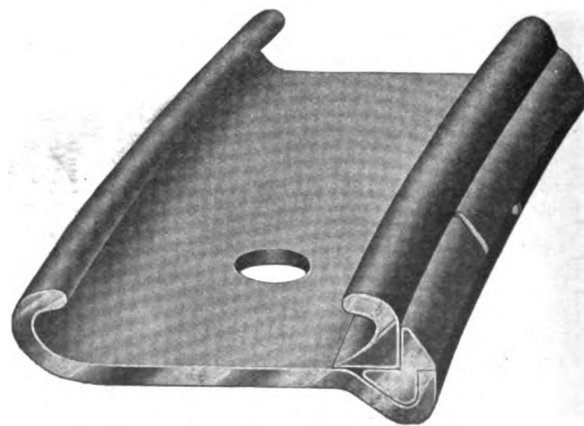
They do not require a special tool—an ordinary screw-driver will do to detach a tire and a brace wrench to demount a rim—no delicate mechanism to get out of order or clog with mud from the road. No knowledge of mechanics necessary.

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Firestone rims have a

No-Split Rim-Base

and will save their owner a great deal of tire-trouble and tire-expense.



Quick-Detachable Clincher Rim

**Modern Machinery and Unlimited Capacity Enable Us
to Make Prompt Deliveries of All Standard Sizes.**

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PUBLISHED EVERY THURSDAY BY

The Motor World Publishing Co.Joseph Goodman, President. R. G. Betts, Treasurer.
F. W. Roche, Secretary

154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) 10 Cents
Foreign and Canadian Subscriptions \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, JULY 6, 1911.

Torture Chambers on Touring Cars.

The terrific and widespread heat wave which has swept the country during the current week has served to convince many persons that front doors on touring cars and side doors on runabouts and roadsters are not all that fancy had pictured. However comfortable may be the passengers on rear seats, the occupants of a closed-in seat which is in close proximity to the engine are subjected to a degree of heat that is suggestive of the infernal regions. During torrid spells such a seat becomes literally a sweat-box and torture chamber. Unless he has asbestos soles and has more of it in his make-up, the man who values creature comfort will detach the door, even though it may slightly sacrifice the looks of his car.

One thing already has been made certain: Front doors either must be made readily detachable or the front half of a closed touring car must be provided with ventilators of some sort, and unless they are ample

they are little better than none at all. In designing their new models, manufacturers should not lose sight of the fact.

The merciful man should be merciful to his chauffeur and his occasional guest, even if he himself does not occupy the front seat. It is not strained mercy, but the refinement of torture to coop either employe or guest over a hot engine on a hot day.

About Driving "On the High."

In the beginning the average chauffeur may have a few sparks of mechanical intelligence about him, but once he has passed through his schooling and, like Private Tommy Atkins, has been taught "how to walk and where to put his feet," it matters little who, or what, he was before. "Once he's pocketed the shilling and a uniform he's filling," he becomes—a regular chauffeur. Which is to say that he becomes a creature of fixed tendencies and one overpowering obsession, namely, to "put her over on high." Of course, there are drivers other than hired men who incline to make undue use of the high gear, usually those who, once having obtained that seemingly difficult combination, hesitate to abandon it lest they be unable ever to regain it. As a rule, however, it is the professional driver who is the worst offender in this particular respect, and though there are welcome exceptions, they simply serve to prove the rule.

"Now, on the other side," as returning travelers love to explain, they do differently. In England, and even to a greater extent on the Continent, "good form" demands that a car be driven on as many speeds as there are notches outside the latch, and in most cases there are four. Every time the car approaches an appreciable grade, back goes the lever into the next position, the car speed is reduced and the engine speed remains practically constant. In this country it would seem almost as though the average driver considered it a disgrace to run on anything but the high gear, while in Europe a driver who attempted to force his car until the engine began to labor probably would consider himself equally disgraced.

There is absolutely no reason why drivers should not acquire sufficient understanding of the machine to appreciate what injury is done when the engine is overloaded, as it always is when an unduly high gear is used. Gears are made to be used; use them the careful driver does and the driver who is

inclined not to use them or who habitually avoids their use is to be condemned as either incompetent or heedless of consequences, or both.

The Way to Open the Speedways.

The movement undertaken by the Licensed Automobile Dealers of New York to have the Harlem Speedway thrown open to the public is a step in the right direction. For the Speedway has outlived its chief purpose, if ever it had any other purpose than providing a playground or a training ground for a handful of owners of fast horses.

Its construction at a cost of \$6,000,000 is a fair illustration of the manner in which longsuffering taxpayers can be imposed upon and mulcted for the benefit of a few men possessed of political influence. Despite the fact that all taxpayers paid for its construction and for nearly 20 years have paid for its maintenance, only owners of light horse-drawn carriages are permitted to use it; all others are shooed away by police especially detailed to preserve the expensive property for the use of perhaps half a hundred men who drive fast horses attached to racing sulkies or wagons, and who long have monopolized its use. Those owners of other "light horse-drawn vehicles" who are not given to speeding gingerly tread the extreme edges of the Speedway.

Though the Licensed Dealers doubtless will encounter mighty opposition in their effort to have this gigantic semi-private road restored to the public, the effort is well worth while. They probably will have to "go into politics" before they meet with any measure of success, the New York Supreme Court's recent decision that it was legal for the State Legislature to take from the people a mid-section of the Coney Island Boulevard and give it to a corporal's guard of horsemen for speeding purposes, making evident that counter legislation is necessary. And the only argument the politicians who constitute the average legislature is the argument of the ballot.

"Going into politics" does not mean merely writing letters to candidates or office-holders and receiving evasive or diplomatic responses—as was done last fall by the New Jersey club, which made itself believe that it was "playing politics." It means picking out a candidate or two and licking him at the polls; and the automobile vote now is large enough to make that end at-

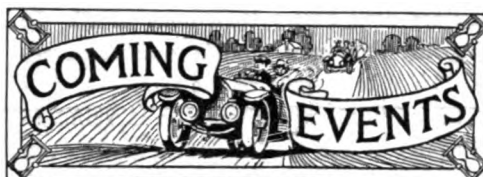
tainable. It will not require more than one licking or two to convey wholesome understanding to the politicians, and while such apparent class action may appear undesirable, the end justifies the means, since no other avenue seems open.

Much wiser in their generation, the cycling leaders early made the politicians appreciate the meaning of the "bicycle vote," and thus eased the cyclist's burden. It is not too late for the automobilists to profit by that experience. Then not only the Harlem Speedway, but the State of New Jersey and many other places speedily will be opened to them.

"Equipment" as a Selling Factor.

It is now in order for the oracle that annually indicates the leading trend of the industry to arise and announce the single word, "equipment." For several years past makers of cars of the medium-priced class have been inclined to seek added inducements for the purchaser through the inclusion in the selling price of what hitherto had been considered rather in the light of luxuries. Thus, it is not so very long since the "giving away" by the car maker of headlights and generator or gas tank, was considered a piece of noteworthy liberality. Following the headlights, came the magneto, then the trunk rack, robe rail, shock absorbers, quick detachable rims, and later, demountable rims. Finally, to the list was added occasionally a special inducement in the way of top and windshield. Relatively speaking, a car thus outfitted still may be said to be "fully equipped."

With the gradual unfolding of manufacturing plans for next year, it now begins to be apparent that fully equipped cars are to be the rule, rather than the exception, that equipment is to be one of the features of next year's business. Not only this, but the scope and quality of the accessories listed in the new catalogs reveals a higher tone than ever before. Furthermore, it is evident that the full equipment of cars hereafter is not to be confined to cars of the intermediate class. To other inducements have now been added such luxuries as electric horns, lighting generators and, following the initiative of one or two makers last year, power-driven tire pumps. The compressed-air starter, likewise, is beginning to loom large, that device having acquired two additional adherents within a few weeks. These fittings de luxe, appear



July 4-20, Homburg, Germany, to London, England—Annual reliability tour for the Prince Henry cup.

July 7, Taylor, Tex.—Racemeet under auspices of Taylor Automobile Club.

July 8 (rain date July 15), Philadelphia Pa.—Racemeet of Norristown Automobile Club on Belmont track.

July 12, Indianapolis, Ind.—Start of "Four States Tour" to Chicago and return.

July 14, Philadelphia, Pa.—Reliability contest for motor trucks under auspices of Quaker City Motor Club.

July 15, Worcester, Mass.—Hill climb under auspices of Worcester Automobile Club.

July 17-19, Cleveland, O.—The Cleveland News reliability contest.

July 17-22, Milwaukee, Wis.—Wisconsin State Automobile Association's reliability contest.

July 18-Aug. 11, Versailles, France—Military truck competition and subsidy trials.

July 20-23, Minneapolis, Minn.—Minnesota State Automobile Association's third annual endurance run from Minneapolis to St. Paul to Helena.

only on cars that otherwise would seem to be beyond the range of closest competition and, therefore, may be considered as evidence of a new attitude in the trade toward the equipment feature.

The really significant point is that in almost every case, the elaborate outfitting of the machine is assumed as a genuine inducement; it is neither advanced as an excuse for raising the price, as a subterfuge to avoid cutting the price, nor as a means of getting rid of an overstock of manufactured machines. The buyer of the fall of 1911 or the summer of 1912 will get more for his money than ever before; there can be no question of the fact. Moreover, as the manufacturer's selection and method of installing accessories is superior to the similar service performed by the average agent or garage man, because performed on a quantity scale, the result will be that the buyer will get better results for his money's worth as well as more than in the past.

Question: Why would it not be cheaper in the end to put down hard pavements of

July 23, Le Mans, France—International road race for the French Grand Prix.

August 1, Chicago, Ill.—Reliability contest for motor trucks under auspices of Chicago Evening American.

August 3-4-5, Galveston, Tex.—Racemeet on Beach under auspices of Galveston Automobile Club.

August 12, Philadelphia, Pa.—Quaker City Motor Club's annual reliability trial for pleasure cars.

August 25-26, Elgin, Ill.—Chicago Motor Club's national stock chassis road races

Sept. 2-4, Brighton Beach, N. Y.—Racemeet under management of E. A. Moross.

Sept. 4, Denver, Col.—Denver Motor Club's racemeet on motordrome

Sept. 7-8, Philadelphia, Pa.—Philadelphia Auto Trade Association's racemeet.

Sept. 7-9, Hamline Track, Minn.—Minnesota State Automobile Association's racemeet.

Sept. 9, Bologna, Italy—International road race for the Italian Grand Prix over the Bologna circuit.

Sept. 12-13, Grand Rapids, Mich.—Michigan State Automobile Association's racemeet.

Sept. 23, Lowell, Mass.—Road races under auspices of Lowell Automobile Club.

Oct. 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers' Association's open air show.

a permanent nature on well-traveled thoroughfares than it is to go on patiently resurfacing the old-style roads year in and year out? On the theory that it is better economy in the end to put down even a better and more lasting pavement than the traffic of the day may seem to demand, not a few communities are laying wood-block or brick surfaces, which, if based on proper foundations, should prove even more durable than they do under the constant stress of city travel. Of course, the expense is great and, naturally, it is easier to tinker with the "roof" of an existing road that was considered a pretty good road when it was built than it is to begin at the beginning and replace the old with the new. But, just for the sake of argument, why would not the latter course be the cheaper and hence the more profitable in the long run? How many new surfacings will it require to offset the cost of a hard and practically permanent road? The New York Park Department, for instance, ought to bring itself face to face with the questions, which are of interest to other road tinkers, also.

BURMAN'S BIG DAYS AT BRIGHTON

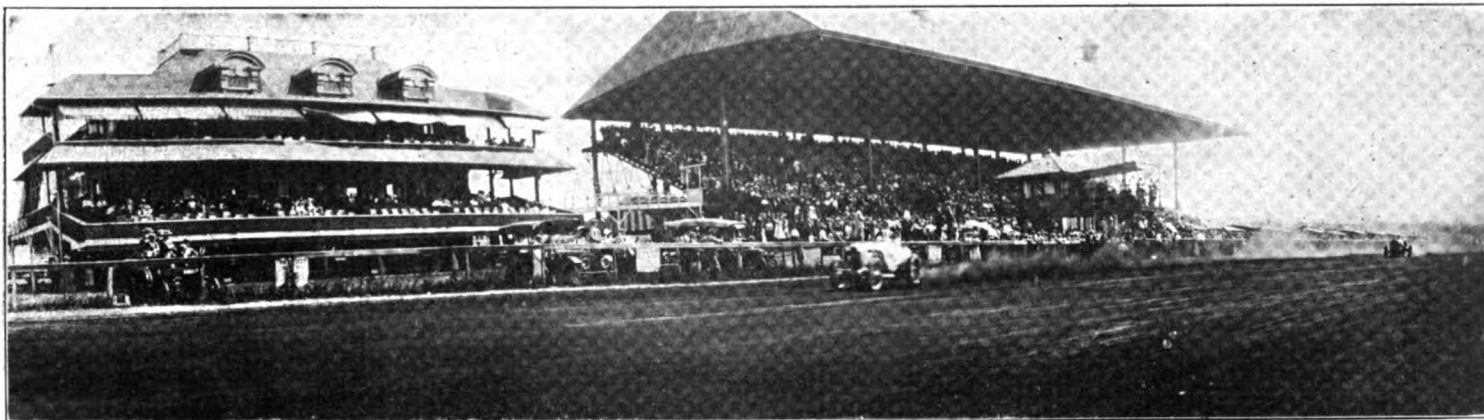
Moross's Star Adds to Brilliance of Two Days' Meet—But There Were Others, Including Don Hess.

Headed by Robert Burman, who captured the richest prize at stake, the Remy Brassard, not inaptly dubbed the "meal ticket," and who also created a new world's record for mile dirt tracks, the Moross racing "sta-

ter itself was far above fever heat, too.

The races themselves were run off without accident, though two fatalities were recorded as the result of practice. C. R. Robinson, S. P. O. pilot, skidded into an oil wagon on the day before the races and subsequently died. In attempting to pass Len. Ormsby, who had turned his Simplex, and, contrary to rules, was proceeding to the paddock in the wrong direction, H. Frye, driving a Mercer, was forced into the fence in practice on the morning of the first day,

proven that the old manual of arms, in use at about the time of the Civil War, has not disappeared entirely. Garbed in khaki uniforms, alleged to have been brought all the way from the Indianapolis Speedway, and carrying antiquated, muzzle-loading rifles, which appeared to antedate that historical period, Moross's own "army," facetiously dubbed Moross's Foot Guards—they guarded their own feet by reclining at length on the grass during the greater part of the program, though they were supposed



BURMAN MAKING A RUNAWAY IN THE RACE FOR THE REMY BRASSARD.

ble" made considerable of a "clean up" on Monday and Tuesday, July 3d and 4th, at Brighton Beach, the occasion being a two day's racemeet which inaugurated the racing season in the Metropolitan district. There may be those who hold that this result was not altogether to be wondered at in view of the fact that Moross himself was chiefly responsible for the whole affair, but be that as it may, be it said to the credit of his troupe that at the least it furnished

and sustained injuries which resulted in his death. Ormsby was suspended by the referee.

Several things were demonstrated during the two matinee meets. One of them was

to be pacing to and fro like real soldiers—did the proving. If there is a suspicion that they were not really militant—at least in appearance—the accompanying illustration, which shows the entire "army" in two detachments, should dispel all doubts.

Interest on the first day centered around the performance of De Palma. He drove the 90 horsepower Simplex formerly handled by George Robertson to such good purpose that he landed in front of the fields



MOROSS FOOT GUARDS—1ST BRIGADE.

enough fast driving, excitement and close finishes to keep at fever heat one of the largest crowds that has gathered at the seaside track in some time, during nearly all of both afternoons—and the thermom-



DON HERR, A RISING STAR.

that De Palma isn't such a fearfully fast driver after all. De Palma drove a mile at Syracuse last fall in 48.92 seconds, thereby establishing a record for mile dirt tracks, but Burman shaved this to 48.72 seconds during the second half of the program—only one-fifth of a second better, but still enough to pull the props from under De Palma's record. Another of the things which was demonstrated was that, contrary to popular belief, there really is a cool spot in the vicinity of New York, even on the hottest days. And last, but not least, it was



MOROSS FOOT GUARDS—2ND BRIGADE.

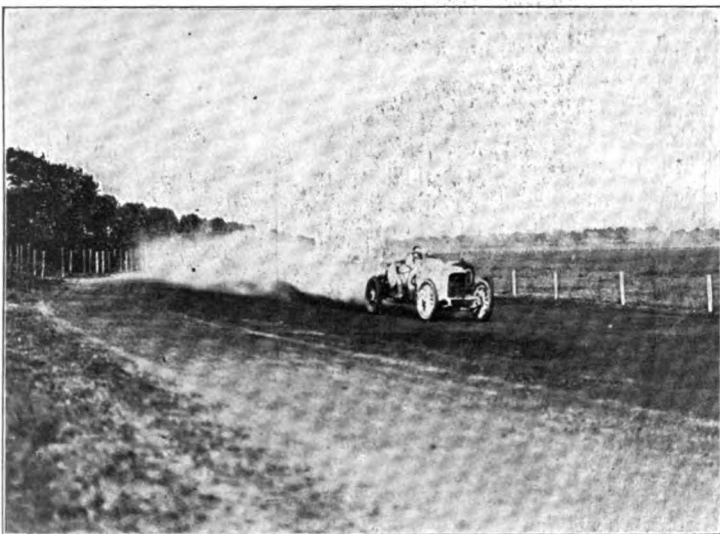
in both the five miles race for cars in the 600-inch class and also in the 60 miles event. Third place in the first of three heats at three miles for the Remy Brassard finished his day's work. The longer event, which

was scheduled as a one-hour race, but which was changed to 60 miles at the last minute, really was the feature race of the day, and De Palma did not have things all his own way in winning. It was a real race from start to finish.

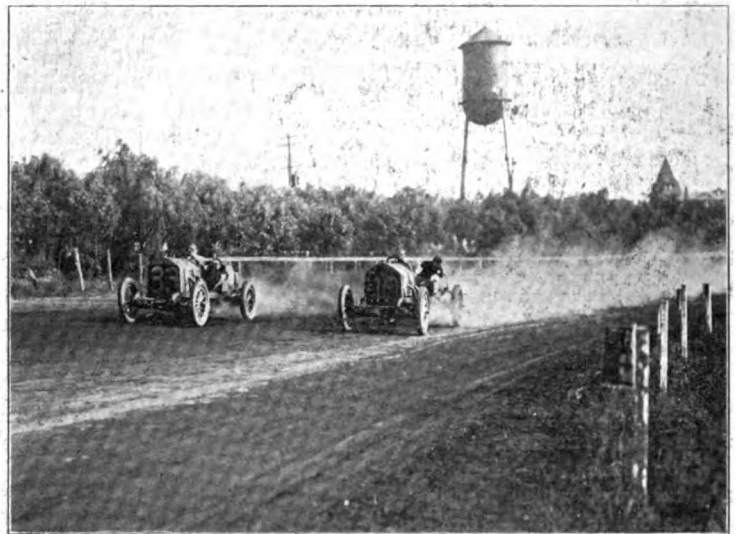
De Palma, Disbrow (Pope-Hartford) and Hughes (Mercer) ran one, two, three, up to the thirty-fifth mile, when tires commenced to pop. Disbrow was the first to stop, and almost before he got away De Palma ran into the paddock, leaving Hughes for the moment in undisputed possession of first place. De Palma got back on the track before Disbrow came around and tagged along behind Hughes in second place. A

hero in the other light car race—for cars in the 231-200 inch class—and he left B. Forster (Correja), winner of second place, far behind. John Jushasz, in an S. P. O., was third. The third race was more deserving of the name and embraced a tough scrap between Patschke, who drove a Benz, and Fay Sheets in a National. Sheets led for practically the entire distance, and it was not until the stretch was reached that Patschke was able to nose him out. He won by inches only, with Knipper, piloting a National, third. De Palma never was headed in the next event, which was for cars having up to 600 cubic inches piston displacement, and won handily in 4:45.93,

recently promoted from mechanic to driver. De Palma led all the way up to the 7th mile, with Herr, driving the National handled by Zengle on the first day, so close that he could have reached out and touched the leader at any time. The rest of the cars were so far in the rear that when De Palma's Simplex broke a spring clip in the beginning of the 8th mile Herr had things all his own way and won by nearly a quarter of a mile. His time was 9:16.18, and Fay Sheets (National) was second. Later Herr gave another spectacular exhibition and proved he was the equal of the others at least, by winning the pursuit race after all but Disbrow had been overtaken.



PATSCHE (BENZ) GOING TO THE FRONT.



HERR AND SHEETS (NATIONALS) IN 50 MILES.

little later Hughes also had his share of tire trouble and was shoved back from first into third place before he got in the running again. At the 45-mile mark these three were running in the same positions as they were at the halfway post, viz., De Palma, Disbrow, Hughes.

Thereafter it was all De Palma, the only excitement being caused by the fight between Hughes and Disbrow for second place. Time after time Hughes forced his Mercer up on an equal footing with Disbrow's "Hummer" and once—in the 51st mile—he succeeded in leading the Pope pilot, though only for a very short time. In the 56th mile Disbrow's hopes were shattered when he was forced to stop to make a tire change and was unable to make up the lost time; he was forced to be content with third place. De Palma's time was 59:21.37.

The first two races of the day were uneventful, the winner going to the front at the crack of the gun and staying there, winning in each case by almost half a mile. Jack Tower, in an E-M-F, scored the first runaway in the race for cars in the "baby" class—161-230 cubic inches piston displacement; Armour Ferguson (Lancia) was second, and Jack Craig (Paige-Detroit) was third. Hugh Hughes (Mercer) was the

with Zengle and Sheets, both in Nationals, second and third, respectively.

The final event was one of the grandest mixups that has occurred in some time. It was slated as a five miles free-for-all handicap, but when Starter Wagner announced it to the drivers as a ten-mile race and gave the word GO to the drivers of the three Paige-Detroit cars who had the long marks, all except four of the contestants started. The others were flagged on the first lap, and in the confusion which resulted, two of the Paige-Detroit cars came together and were put out of the running. When the race finally was started, all but five drivers had been disqualified, and Hughes (Mercer) won quite easily from the 30-second mark.

As was the case on the first day, the two light car races run off on the second day proved easy for the winners, the margin by which they were won in each case being considerable. Jack Tower (E-M-F) repeated his victory in the 161-230 inch class and Tryon, who drove a Correja, accounted for the event for cars in the next larger division. Both were at five miles. A ten miles race for cars in the 600-inch class proved the first really exciting event of the day, and evolved what appeared to be a new star in the person of Don Herr, but

Tire trouble caused the Hummer's pilot's downfall at the 23d mile, and Herr won again.

It was just after this that Burman made his attempts at the mile record. His first try was slow and netted him 57.07 seconds, considerably more than the 48.92 seconds which constituted the record. His second trial looked still slower, as it was less spectacular, Burman hugging the fence closely and failing to throw up the immense cloud of dust which characterized his former attempts. Appearances were deceptive, however, and he received a great ovation when it was announced that he had bettered the world's mark by just 20/100 of a second.

The 50 miles race for cars in the 600-inch class was characterized by a further exhibition of Don Herr's almost perfect driving. Up to the 27th mile he and his National looked like sure winners. Disbrow, though running second, being a long distance behind, and Cobe in a Jackson still further back in third place. Otto Rost (Crow) and L. Anderson (Marion) had been lapped several times and never were dangerous contenders. Just after the 27th mile post had been passed, Herr's star, heretofore in the ascendant, took a drop, and he was forced to retire with a broken valve. Thereafter Disbrow's lead was never seriously

in danger, in spite of the fact that he made a stop to change a tire. Cobe also had to stop, and though eventually he got second place he was several laps behind at the finish. Disbrow's time was 51:59.10.

Both the second and third heats for the Remy "meal ticket" were won by Burman,

and, William Tryon, Colby. Time, 8:11.56.

Three miles, free-for-all, first heat for Remy Brassard—Won by Wm. Knipper, Benz; second, Robert Burman, Benz; third, Ralph De Palma, Simplex. Time, 2:41.68.

Sixty miles, non-stock, up to 600 inches displacement, minimum weight, 2,100 pounds

Tuesday, July 4.

One mile time trials—Robert Burman, Benz, 51.07 and 48.72 seconds. A. Hummell, Mercedes, 58.57 seconds.

Five miles, non-stock, 231-300 inches displacement—Won by Tryon, Correja; second, L. Anderson, Marion; third, Otto Rost, Crow. Time, 5:33.91.

Five miles, non-stock, 301-450 inches displacement, minimum weight, 1,800 pounds—Won by Cyrus Patschke, Benz; second, Louis Disbrow, Pope-Hartford; third, Wm. Knipper, National. Time, 4:43.47.

Ten miles, non-stock, up to 600 inches displacement, minimum weight, 2,100 pounds—Won by Don Herr, national; second, Fay Sheets, National; third, Louis Disbrow, Pope-Hartford. Time, 9:16.18.

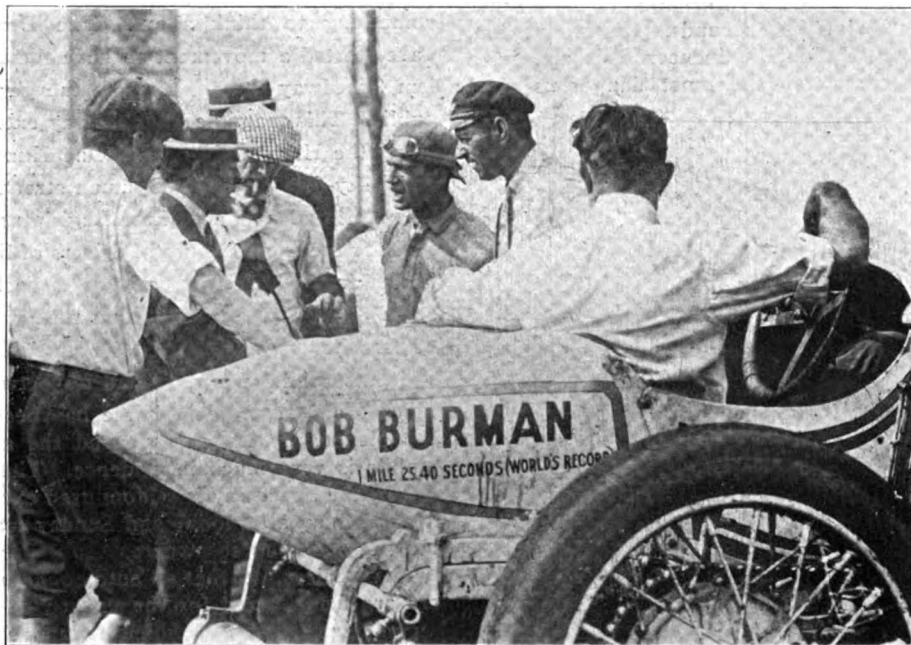
Remy Brassard—Won by Robert Burman,

Three miles, free-for-all, second heat for Benz; second, Wm. Knipper, Benz; third, Cyrus Patschke, Mercedes. Time, 2:37.38.

Three miles, free-for-all, third heat for Remy Brassard—Won by Robert Burman, Benz; second, Wm. Knipper, Benz; third, Cyrus Patschke, Mercedes. Time, 2:56.08.

Australian pursuit race, non-stock, free-for-all—Won by Don Herr, National; second, Louis Disbrow, Pope-Hartford; third, C. Lund, Simplex. (23 miles.) Time, 23:14.97.

Fifty miles, non-stock, up to 600 inches displacement, minimum weight, 2,100 pounds—Won by Louis Disbrow, Pope-Hartford;



AN OFFICIAL WRANGLE—BURMAN AN INTERESTED LISTENER.

and he had an especially easy time. He drove the so-called "Blitzen Benz," at one time the property of Berna Oldfield—who looked on—and simply walked away from the others. At least he walked from them in the second heat; why he did not repeat his performance in the third instead of alternating in the lead with Knipper is open to conjecture. At any rate, Moross ran out on the track just before the start and whispered in Knipper's ear. But Burman won anyway, though it looked like anybody's race up to within 300 feet of the finish line.

The summary:

Monday, July 3.

Five miles, non-stock, 161-230 inches displacement—Won by Jack Tower, E-M-F; second, Armour Ferguson, Lancia; third, Jack Craig, Paige-Detroit. Time, 5:48.86.

Five miles, non-stock, 231-300 inches displacement—Won by Hugh Hughes, Mercer; second, B. Forster, Correja; third, John Juhasz, S. P. O. Time, 4:55.51.

Five miles, non-stock, 301-450 inches displacement—Won by Cyrus Patschke, Benz; second, Fay Sheets, National; third, Wm. Knipper, National. Time, 4:47.74.

Five miles, non-stock, up to 600 inches displacement, minimum weight 2,100 pounds—Won by Ralph De Palma, Simplex; second, Len Zengle, National; third, Fay Sheets, National. Time, 4:45.93.

Five miles, free-for-all novelty race for touring cars—Won by Lane, Hudson; sec-



SHOWING CARS PARKED BEHIND BRIGHTON BEACH GRANDSTAND.

—Won by Ralph De Palma, Simplex; second, Hugh Hughes, Mercer; third, Louis Disbrow, Pope-Hartford. Time, 59:21.37.

One mile time trial by Robert Burman (Benz). First trial, 49.59 seconds. Second trial, 49.36 seconds.

Five miles, free-for-all handicap—Won by Hugh Hughes, Mercer (30 seconds); second, Lund, Simplex (20 seconds); third, Louis Disbrow, Pope-Hartford (20 seconds). Time, 5:33.

second, Harry Cobe, Jackson; third, Otto Rost, Crow. Time, 51:59.10.

Five miles, non-stock, 161-230 inches displacement—Won by Jack Tower, E-M-F; second, J. Craig, Paige-Detroit. Time, 5:24.67.

Five miles, free-for-all handicap—Won by Jack Tower, E-M-F (40 seconds); second, Louis Disbrow, Pope-Hartford (scratch); third, J. Craig, Paige-Detroit (55 seconds). Winner's time, 5:29.77.

FAST FLIGHTS ON OSSINING HILL

Zengle the Star Performer Capturing the Free-for-All—Summer Girls in Easy Chairs Look On.

So far there have been at least two National days this year. One of them, as every one knows, was the Fourth of July, and the other one was the first of the same month. But whereas "the Fourth" was cele-

first place in the division closed to fully equipped touring cars owned and driven by members of the Upper Westchester Automobile Club.

To Len Zengle, however, really belongs the greatest glory of the day. He proved fastest in both the free-for-all and the class for cars of from 451 to 600 cubic inches piston displacement, his time in the former event being 33 $\frac{1}{4}$ seconds. His mount, too, was a National. Spencer Wishart, in a Mercedes, was the most dangerous rival

WANT SPEEDWAY THROWN OPEN

New Yorkers Take Steps to Restore \$6,000,000 Roadway to Public—Now Monopolized by Few Horsemen.

The Licensed Automobile Dealers of New York have given drivers of fast horses something to think about. The Dealers have started a movement to have the Harlem Speedway thrown open to the general public. This magnificent speedway extends along the Harlem river from One Hundred and Fifty-fifth street to Dykman street. It was built under an act of the Legislature of 1893 for the exclusive use of drivers of light, horse drawn carriages, and at a cost of some \$6,000,000. At that time the driving of fast horses was carried on extensively and automobiles were few and far between. Since then the trotting horse has become conspicuous by his absence and the automobile is very much in evidence. The result is, the Speedway is seldom used excepting Saturday afternoons and Sunday mornings by a few horse owners.

The Dealers feel that all automobile owners are being taxed for the upkeep of this magnificent roadway, which is under the direction of the Park Department, although they derive no benefit. They do not ask the City to turn the road over for speeding of automobiles. The object is to have it

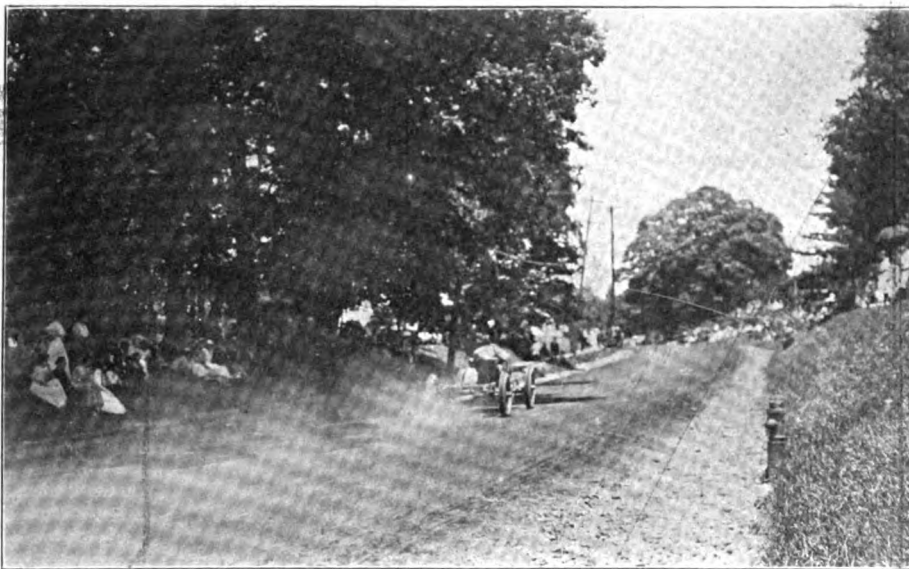


SUMMER GIRLS, AND OTHERS AT OSSINING'S HILL CLIMB.

brated all over the United States, the first was celebrated as a National day principally in Ossining, N. Y., the habitat of the Upper Westchester Automobile Club. The cause for all the disturbance was the annual hill climb fathered by that organization, and the reason the cognomen National day is perfectly apt is that the pilots of National cars won four of the five events scheduled and it is not unlikely that they would have won the fifth if they had been eligible for the class.

Taken all in all it was a gala day for the Hudson River town. It was not necessary to let out the convicts in order to get a crowd—everybody, men women and children, turned out and lined the course from end to end. In fact, it was just a good excuse for a picnic and camp chairs and other kinds of chairs, and lunch boxes were the rule rather than the exception. The course was in excellent condition and everything went off with a degree of smoothness seldom exceeded.

Debonair Caleb Bragg, who up to that time had driven Fiat cars to the almost total exclusion of everything else, started the winning streak of the National contingent by capturing first honors in the class for cars of from 301 to 450 cubic inches piston displacement. Closely following Bragg's victory, Wilson, also at the wheel of a National, streaked up the incline for



LEN ZENGLE (NATIONAL) WINNING OSSINING FREE-FOR-ALL.

that Zengle had, but the best he could do was second place, and he got that in both the events.

Hughie Hughes, who had the mount on a Mercer, was the only outsider to get a look-in. His particular success was made in the class for cars of from 231 to 300 cubic inches piston displacement, which event he won quite handily.

opened to automobilists for pleasure purposes, the same as the drives now controlled by the Park Department.

The Dealers have appointed R. H. Johnston, of the White Co., and Harry Bronner, of the Stoddard Motor Car Co., to confer with the Park Board and the Road Drivers' Association for the purpose of ascertaining what can be done in the matter.

KNIGHT ENGINE FOR STEARNS CARS

Before Adopting It, Stearns Adds Some Original Ideas—What They Are and the Purposes Served.

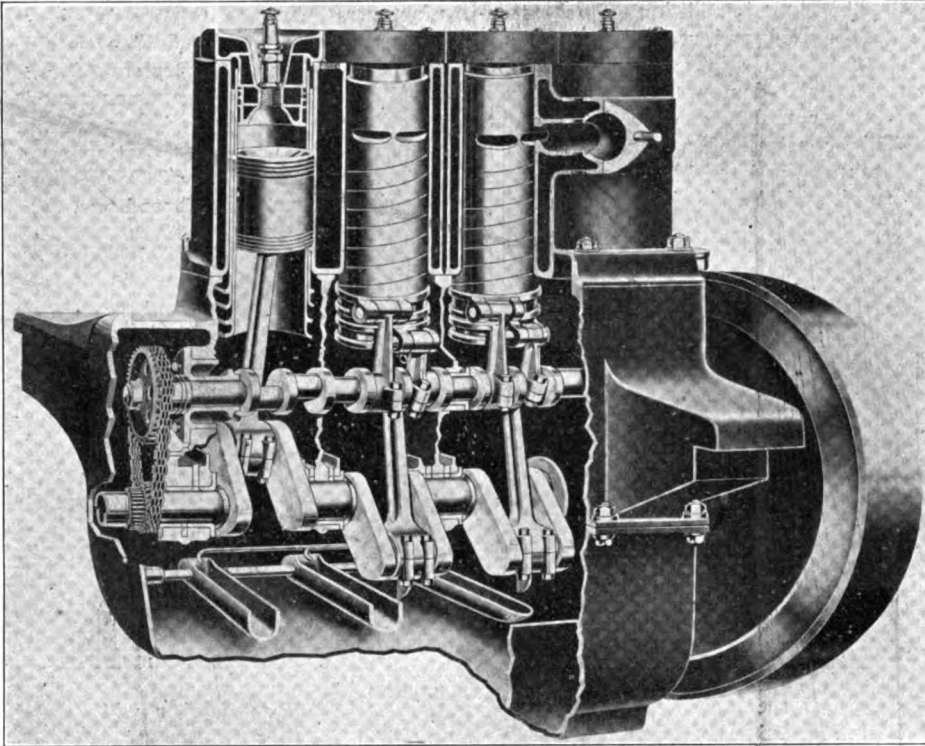
In announcing its adoption of the Knight engine, to the entire exclusion of the poppet

latter being of the type that has been used on the smaller of the two previous models. The axle consists of a massive solid forging spread at the center to form an open trussed section, which embraces the transmission and differential casing. The axle is drilled out at either end to receive the driving shafts, the effect being the same

plant, which is the only novel feature of the new model, the design of the carburetter may be termed a revision of former Stearns practice. That is to say, it is of the double-jet type, and to that extent is similar to those which have been used on both the larger and smaller of previous models. One jet supplies fuel for low speeds, while the other jet comes into action to supply increased quantities of gas in exactly the same proportions.

A unique provision is that whereby the air supply is heated to a uniform temperature under all conditions. To ensure this desirable result, a continuous passage is cored out of the crank case, with the terminal of which the air intake to the carburetter is connected. The result is that in passing through the case and around the bearings, the air is heated, while the surfaces from which it draws the heat are correspondingly lowered in temperature. The result is that the crank case and bearing temperatures are maintained at a lower level than ordinarily, lubricating being correspondingly assisted.

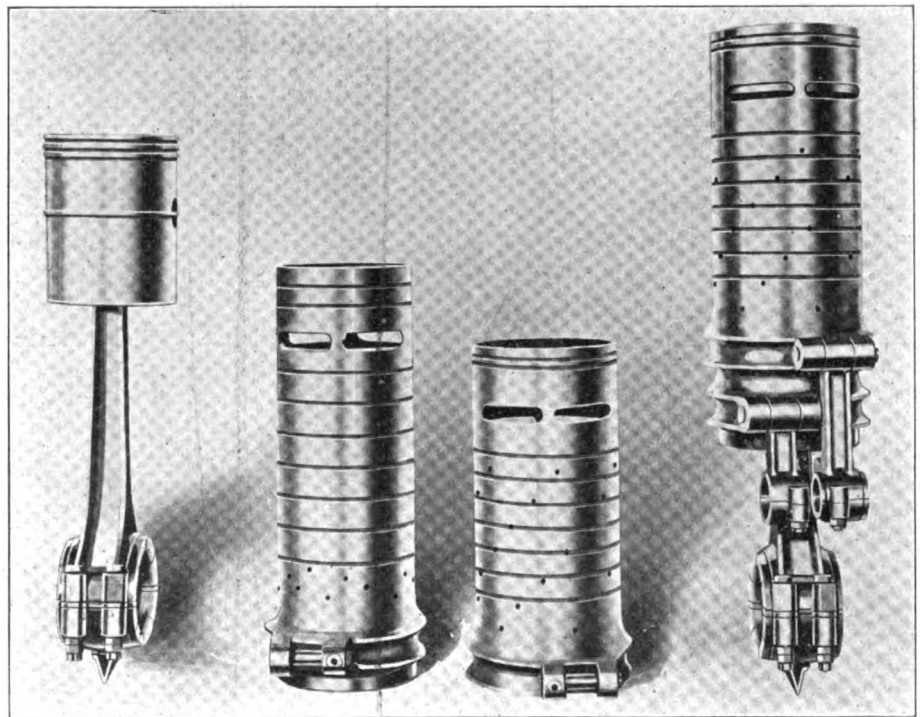
As in other Knight engine products, oiling is carefully provided for, the success of the system depending on the proper oiling of the sleeves. To this end a combination of pressure feed and splash distribution is employed. A gear pump, placed in the rear of the crank case and at the bottom, draws a continuous supply of oil from the sump, which is fed through ducts to a series of open troughs, one of which is located beneath each of the cranks.



THE STEARNS-KNIGHT MOTOR, SHOWING ITS GENERAL CONSTRUCTION.

valve type of engine, The F. B. Stearns Co., Cleveland, Ohio, has let it be known that it has not taken the principle "on faith," but has made a painstaking study of its characteristics extending over two years. As a result of its investigations the Stearns-Knight engine possesses a number of original features, and actually differs from the Knight-Daimler engine, which is its best-known prototype, in several material points. These include the general design of the cylinder head, which is fitted for but one spark plug, instead of two; the proportions of the engine and the new, specially designed carburetter and the oiling system.

In proceeding to replace both the 15-30 and the 30-60 models which it formerly produced, the Stearns company has fixed on a type which is intermediate in size and which in several ways combines the characteristics of both. Having a bore and stroke of $4\frac{1}{4} \times 5\frac{1}{2}$ inches, respectively, the new motor takes an S. A. E. rating of 28.9 horsepower. Its actual development is considerably over that, however, the makers, indeed, guaranteeing a 50 per cent. overload capacity. The transmission system includes the multiple-disk, dry-plate clutch, which has been a Stearns feature for several years, and likewise embodies a three-speed selective change gear mounted on the rear axle, the



STEARNS-KNIGHT ENGINE PISTON AND VALVE GROUP COMPLETE

as that of the conventional live axle. With respect to the details of the power

Dippers on the connecting rod bearing caps scoop from these troughs at each revo-

lution small quantities of oil, which is forced through the bearings by the action of the scoops and afterwards thrown off by centrifugal force against the valve motion shaft and the interior of the inner sleeve. The piston is lubricated in this way, much in the ordinary fashion, the sweep of the piston also forcing the lubricant outward through a number of holes drilled in the lower part of the inner sleeve, whence it is carried upward between the inner and outer sleeves by means of a series of circumferential grooves. Holes drilled through the outer sleeve and a similar series of groove serve to carry the oil through to the cylinder wall and effect its distribution.

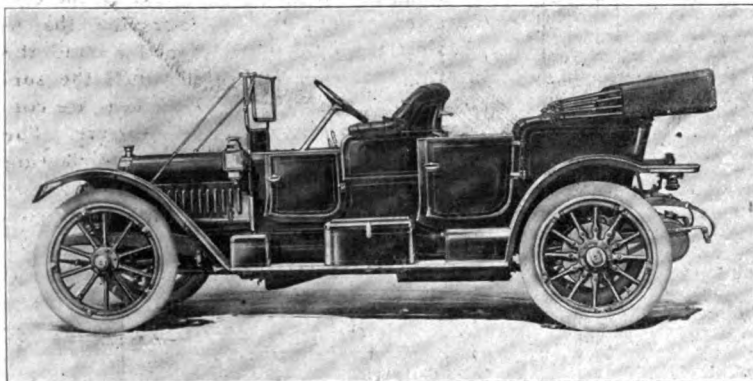
course moves in time with the engine, and so varies the air supply in proportion to the demand of the engine for gas, its only moving part is a check valve.

The new Stearns line, based on a single chassis, will comprise touring, runabout, roadster, landaulet and limousine mountings in a variety of color finishes. A special feature is to be made of the equipment, which will include in addition to such essentials as the tool and repair outfit, a silk mohair top with slip covers, windshield, quick detachable-demountable rims, Klaxon horn and a complete electric lighting outfit. This consists of a generator, headlights, tonneau and trouble lamps and combination oil and electric side and tail lamps.

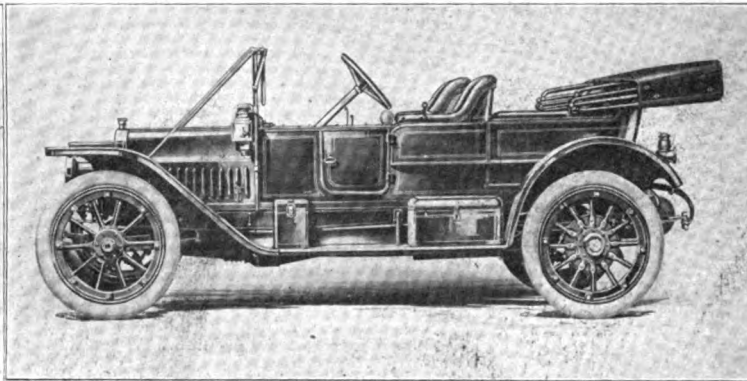
position to insure regular firing. I put a small copper washer on the end of the armature shaft, taking up this play, and now the magneto works as well as ever."

New York's Licensed Dealers Reorganize.

In line with the action of similar bodies and following the reorganization of the Association of Licensed Automobile Manufacturers itself, as the result of the decision adverse to the Selden patent, the Licensed Automobile Dealers of the City of New York has been transformed into the Automobile Dealers' Association, Incorporated. The incorporation was effected under the laws of Connecticut and though the charter is a broad one, the chief



THE STEARNS-KNIGHT STANDARD TOURING CAR.



THE STEARNS-KNIGHT SMALL TONNEAU ROADSTER.

By a special arrangement the troughs above referred to can be moved slightly about a shaft at one side of the case in such a way as to alter the depth to which the dippers are plunged in the oil. This has the effect of altering the distribution and is an efficient provision for ensuring an ample oil supply for high-speed running.

One of the original features of the Stearns-Knight engine is the formation of the cylinder head, which is of unusual depth and fitted for but one set of spark plugs, instead of two, as more commonly is the case. This is rendered possible by the adoption of dual ignition. As a result of this an unusually large body of cooling water is carried around the combustion chamber, while ignition is made to occur in what is in effect a firing chamber immediately over the center of the combustion chamber. The cylinders are cast in pairs, and, of course, the exterior of the engine is absolutely "clean," the entire valve gear being contained within the crank case.

Rather a neat improvement over ordinary construction in respect to the fuel supply is the adoption of an air pump which replaces the ordinary check-valve. Thus, instead of cooled and filtered exhaust gas, the tank pressure is obtained by means of compressed air. The pump which is of the single-acting plunger type, is driven from a prolongation of one of the valve-sleeve connecting rods and is mounted horizontally on the left side of the crank case. Aside from the plunger, which of

The general specifications of the chassis include the wheel base of 121 inches for all models except the small tonneau and roadster, these types being of 116-inch base; tires 36 x 4½ inches, both front and rear, spring, semi-elliptic in front and three-quarter elliptic in the rear. The body designs, as the accompanying illustrations show, are of characteristic design. Both the touring and small tonneau types are built both with and without front fairs, according to the option of the purchaser. The price of the standard types is \$3,500. The landaulet and limousine types sell for \$4,850 and \$4,750, respectively, and the chassis alone for \$3,200.

Peculiar Misfiring Traced to Armature.

"My magneto had been giving me trouble for about 2,000 miles," recently remarked a motorist, "and for a long time I was at a loss to discover the reason for the misfiring, which was not confined to any particular cylinder, but which alternated between them all. Examination showed that the fiber of the distributor was cracked slightly, and thinking that possibly the crack might have become filled with carbon dust, thus short circuiting some of the leads, I had a new one fitted, but without effecting a cure. Finally I took the whole thing down, and in refitting it discovered that there was about one-sixteenth of an inch end play in the armature shaft. This affected the make and break mechanism to such an extent that it was impossible to set it for any intermediate

object of the organization will be to continue to serve the interests of the New York retail trade. The corporation will have no stock. The incorporators named are John F. Plummer, Charles P. Skinner, Frank Eveland, R. H. Johnston, Sidney B. Bowman, H. M. Bronner and M. J. Budlong.

Brush Runabout for Less than \$400.

The announcement late last week by the Brush Runabout Co. of a new model, the Liberty-Brush, at \$350, was one of the trade moves that had been so well guarded that not even an inkling of it had escaped in advance. The price, which scarcely two years ago would have been deemed impossible, naturally set the world by the ears. The new model differs in detail only from the Brush model E runabout which lists at \$450. It employs the same 10 horsepower motor and the same chassis. The crank case of the motor is, however, of cast iron, instead of aluminum; hub caps are of iron instead of brass; fenders are short instead of long, and the upholstery is of red imitation leather instead of the heavy black leather used on model E.

Reo Adds a Thousand-Dollar Model.

The Reo Motor Car Co., of Lansing, Mich., has added a \$1,000 model to its line. It is equipped with a 4 x 4½ inch four-cylinder, 30 horsepower motor, and other standard features and retains many characteristics of the current 4-30, \$1,250 model.

COLUMBIA WITH SLIDING VALVES

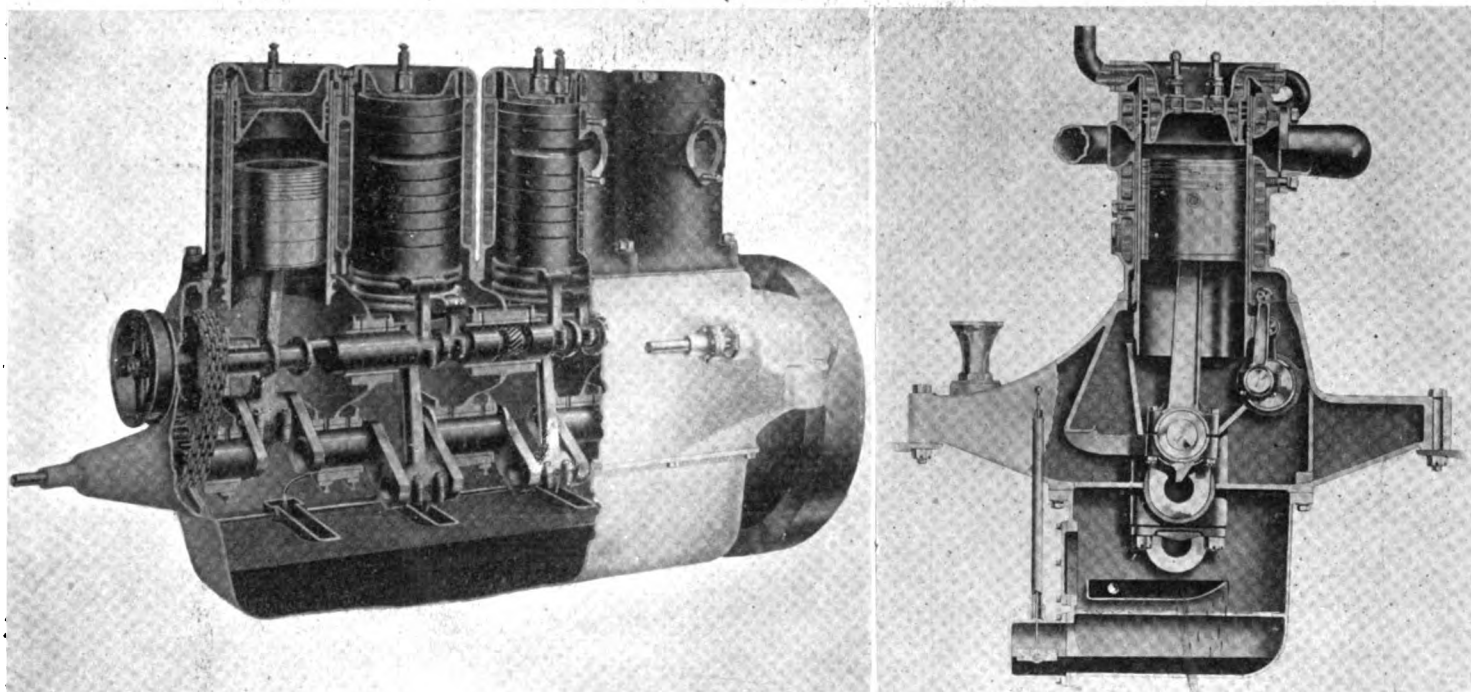
How Old Company Will Employ Knight Engine—Imported Castings Used—Features and Equipment of New Model.

Following its own initiative it is but natural that the Columbia Motor Car Co., of Hartford, Conn., should be among the first in this country to adopt the Knight engine. As the direct offspring of the pioneer Electric Vehicle Co., Columbia products are associated with a long history of innovation and primary achievement. In adopting the Knight engine, however, no element of unnecessary speculation has been per-

the Bosch system of double ignition. Complete water jackets surround the cylinders and heads, the cooled surfaces being so disposed that the walls and the bolted-on heads shall be maintained at a uniform temperature under all circumstances. The manner in which the cooling has been worked out is plainly indicated in the accompanying sectional view of the complete engine.

The picture also affords a good idea of the manner in which lubrication requirements are taken care of. The oil supply is pumped from a reservoir in the bottom of the crank case and automatically delivered to feed pipes, as in the familiar pump-over system. Instead of being delivered directly to the bearings, however, the oil is fed to

Distribution of oil to the pistons, cylinders and sleeves is an important feature of the system, which is carried out by drilling small holes through the inner and outer sleeves and turning a series of grooves in their respective exterior surfaces. The picture showing the engine components disassembled illustrates this feature very clearly. It also indicates the general formation of the cylinder units and affords a comparison between the crank and valve motion shafts, showing that the latter is a true crank shaft having a very short "throw." The short connecting rods that are employed in actuating the sleeves, which also are shown, indicate plainly the relatively short travel of the sleeves as compared with the piston.



VIEWS SHOWING ARRANGEMENT OF THE NEW COLUMBIA-KNIGHT ENGINE.

mitted to enter into account. The decision to adopt the sleeve valve engine was reached only after many months of patient experiment and study. The engine itself has been designed by the Columbia company's own engineering staff, in consultation with Knight himself. Not only this, but, recognizing the possible uncertainties of producing a radical design, as well as the advantages which arise from long experience in any given line of work, arrangements have been made for the importation from abroad of the cylinders, sleeves, pistons and rings.

The Columbia-Knight engine is of $4\frac{7}{8} \times 5\frac{1}{2}$ inch cylinder dimensions, its formula rating being 38 horsepower, although from 70 to 85 horsepower is said to be available as the maximum speed of the motor is approached. It is of four-cylinder construction, the cylinders being cast in pairs. Two spark plugs are fitted in the depressed cylinder heads, the standard equipment being

a series of troughs, one of which is placed under each crank, from which it is scooped up and distributed to the "big end" bearings of the connecting rods and through large bores in the crank shaft to the main bearings. The system, which closely resembles that which has been standardized for all Knight motors, has been designated by the Columbia company a "movable dam" system. Its important feature is that the troughs are mounted at one end only and on a shaft running from end to end of the motor, the shaft being subconnected to the throttle mechanism. As the throttle is opened or closed the troughs are raised or lowered, the depth to which the scoops dip into the troughs, and consequently the oil supply to the engine thus being regulated in accordance with the speed. All overflow from the troughs and drainage from the cylinders falls to the lower portion of the base through a screen which separates the upper and lower compartments.

The method of driving the valve gear by means of a silent chain, instead of a train of spur gears, is another characteristic of this type of engine. The magneto and pump drive likewise is by silent chain, motion for this purpose being taken from the rear end of the crank shaft, while the valve shaft is driven from the forward end.

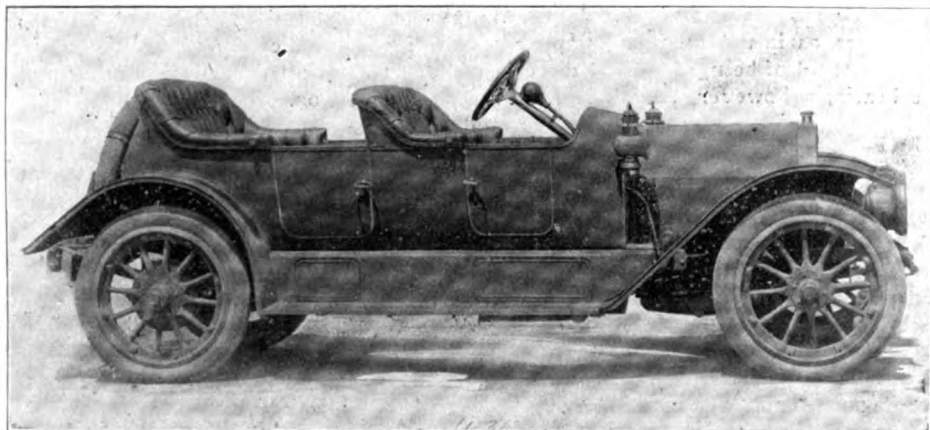
While in many respects the new model Columbia car will follow the lines of its predecessors, the installation of the slide valve engine will not be its only novel feature. Being equipped, almost as a matter of course, with closed-front bodies, the control mechanism will be adapted to suit the convenience of the operator and also to provide means for entrance from either side. To this end the emergency brake and gear shifting levers are of short length and are mounted in the center of the foot board. As an option, the control lever set may be placed at the right of the foot board and arranged either inside or outside the body;

the central mounting is recommended, however. The change gear mechanism is of the four-speed, selective type, compactly built and so designed that both the driving and lay shafts are supported on both sides of the driving gears.

Contrary to former Columbia practice in respect to the mounting of the rear axle in the chassis, a special form of U-section pressed steel triangular torsion member has been adopted, which is tied to the upper and lower sides of the rear axle housing and is linked to the frame in front by means

and hooded landaulets also will be included in the line.

An improved poppet-valve type of motor also is being brought out which will be installed in a chassis corresponding closely to that of the sleeve-valve machine. The T-head motor is of 4 $\frac{7}{8}$ x 5 $\frac{1}{2}$ inch cylinder dimensions, therefore taking a nominal rating of 38 horsepower. This vehicle will be a continuation of the present mark 85 Columbia, with improvements in body construction and in certain mechanical details. The most important of these are the adop-



THE COLUMBIA-KNIGHT FIVE PASSENGER ROADSTER.

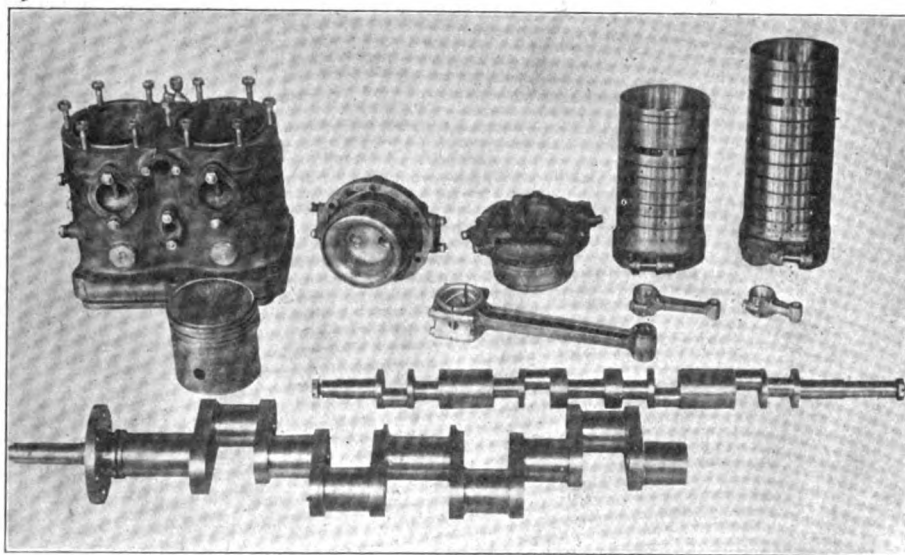
of a flexible connection. The original form of double combination radius and distance rods at the sides, of course, has been eliminated in favor of the somewhat more conventional arrangement.

The new Columbia rear axle is of the full floating type, the central housing being a malleable casting with the end tubes hot rivetted in place, but not brazed. Large sized brakes are mounted on the wheel hubs and are actuated by means of balance beams. The wheels are 36 inches in diameter, and the wheel base for the standard chassis is 129 inches.

Flush-sided bodies are to be produced in seven- and six-passenger touring types and also in close-coupled and two-passenger roadster forms. The six-passenger touring car, in particular, is noteworthy by reason of the fact that the extra seats are especially designed for the purpose and are arranged to fold into the floor, where they are practically out of sight when not in use. The two-passenger roadster is of the so-called gunboat type and carries a large capacity fuel tank and a protected touring trunk.

The new style Columbias will carry a very complete line of equipment including such essentials as tops and covers, quick-detachable-demountable rims, a power tire inflation pump, electric lights, magneto, ignition and lighting battery, shock absorbers, trunk rack and rear storage hamper, not to mention the usual outfit of tools and spare parts. Semi-enclosed limousines, with removable glass panels for the driver's seat, double limousines and straight-front

tion of a pure air pressure system for the gasoline feed, a raised carburetter and a motor-driven tire-inflation pump. The Columbia-Knight car with its full equipment,



COLUMBIA-KNIGHT ENGINE PARTS SHOWING STRUCTURAL DETAILS.

will sell for \$4,500, while the car which is to be fitted with the poppet-valve engine will list at \$3,500.

Emergency Substitute for Broken Spring.

Owing to the excellence of materials now available and to the experience of designers which permits of practically perfect proportioning, spring breakage is a comparatively rare occurrence. When springs do

break, however, the cause usually is a severe rebound rather than a too heavy load. Therefore, unless a car is equipped with shock absorbers, it is well to fit straps from the chassis frame to the axles to prevent excessive and unnecessary spring action. Even should a spring break it generally is possible to effect a temporary repair which will at least allow of the car being driven to the nearest repair shop, by jacking up the frame and placing a block of wood between it and the axle. The block should be roped or wired in position, and though the car naturally will ride hard it may be driven a considerable distance without danger of further damage if it is handled carefully. The remedy may be used with equal facility for either front or rear springs, though in the case of front springs greater care in making the block fast will be necessary, as the axle is likely to be pushed back out of place, when the steering control would be lost.

When Too Much Water Does Harm.

While too much water in a radiator undoubtedly is better than not enough, a very little too much often is the cause of unsightly brass work or stained paint. Water expands a certain amount when heated and if a radiator is filled up to the top of the filler cap, or nearly so, the water, expanding, is forced out around the cap and runs over the top of the radiator and the bonnet. Not infrequently the resultant sloppy condition is thought to be due to the water

boiling, whereas in the majority of cases it really is caused by too much water. If the water level is brought up so that the tops of the tubes are covered from an inch to an inch and one-half, the remaining space will be sufficient to allow for any expansion which may take place, and the appearance of the car in general will be enhanced by the absence of stained or dirty paint and tarnished brass.

Torsion Tubes and Radius Rods; Their Purposes

Properly handled, and with the engine running, an automobile will start when the clutch is "let in"; the energy generated by the motor will turn the propeller shaft, the change gear set will transmit the power to the wheels, either through the rear axle or by means of a chain or chains, the wheels will be rotated and the car will move. Similarly, the vehicle will stop when the clutch is disengaged and the brakes are applied. All of which is very simple on the face of it. A peep "behind the scenes," so to speak, reveals the fact that each component part of the transmission mechanism has one or more particular functions to perform, and that each is so designed and arranged that all work in harmony toward a common end. In other words, there is a certain definite relationship between the power plant, the chassis frame and the rear axle, and this relationship must be maintained.

In defining and establishing the bearing of these three parts upon each other there are three important influences, or, as the engineer would put it, three groups of forces, to be reckoned with. Primarily there is the load; it is obvious that the greater part of the weight of the vehicle must be supported by the rear axle. The second of the three groups of forces becomes apparent in the drive or tractive effort. Since all of the propulsive action is imparted to the vehicle through the rear wheels, it follows that upon the wheels and axle there must devolve a force, or set of forces, corresponding to the force that in a horse-drawn vehicle is communicated to the vehicle through the traces. In railway parlance, this force is styled the "draw-bar pull," an expression that has gained some use in the automobile industry.

The third of the influences which tend to disturb the relationship of these three parts of the automobile is torque. There is a law in mechanics to the effect that "every action has an equal and opposite reaction," which, stated negatively, is embraced in the trite old saying, "A man cannot lift himself by his boot straps." Expressed in even simpler language it might be said that it is impossible to push against an object unless one first braces himself against another body upon which there will be exerted an equal pressure in the opposite direction. Similarly, in a shaft-driven car, when the driving pinion exerts a pressure upon the driven gear, an equal pressure in the opposite direction is exerted upon the housing of the rear axle. Therefore the first tendency is for the smaller pinion to "climb" the larger gear; that is to say, to roll over it instead of causing it to turn.

The effect of such a movement would be to cause the housing to swing around the axle exactly as each of the spokes of a wheel rotates around the hub.

The torque thrust in a shaft-driven car is, of course, equal to the propulsive effort. Similarly, when the brakes are applied to bring the vehicle to a stop, there also is a reaction, though it is in the opposite direction to that which is exerted in the propulsion of the car. A similar influence must also be combatted in chain-driven cars, though owing to the manner in which the countershafts are mounted, no special mechanism is required to take care of the torque, the gearcase itself serving the desired purpose.

Considering the effects of these three groups of forces, the load bears downward on the axle through the springs, but varies as the road varies, because of the movement of the springs. The drive causes the axle to press forward under the chassis, and were it not opposed in some way it would slide forward out of its normal position. The torque causes the axle housing to tend to rotate about the axle proper in a direction opposite to that in which the prime force is exerted. In the mounting of an axle, these three groups of forces must be accounted for, each by a special means of connection. Not only this, but the axle must have freedom of movement under spring play, it must be rigid in respect to fore and aft movement under the chassis and also it must be maintained parallel to the front axle.

To prevent the tendency of the rear axle housing to rotate about the axle under the strain of propulsion or under the braking strain, torsion rods, or bars, are fitted. Radius rods, on the other hand, maintain the rear axle in its proper position parallel to the front axle and also take the drive. Their functions thus are widely different, and though it might appear that owing to their widely differing functions, it would be necessary that torsion rods and radius rods be separate and distinct parts, this is not the case. In a number of instances, the torsion rod is made in the form of a tube which encloses the propeller shaft and also acts as a radius rod in that it takes the drive.

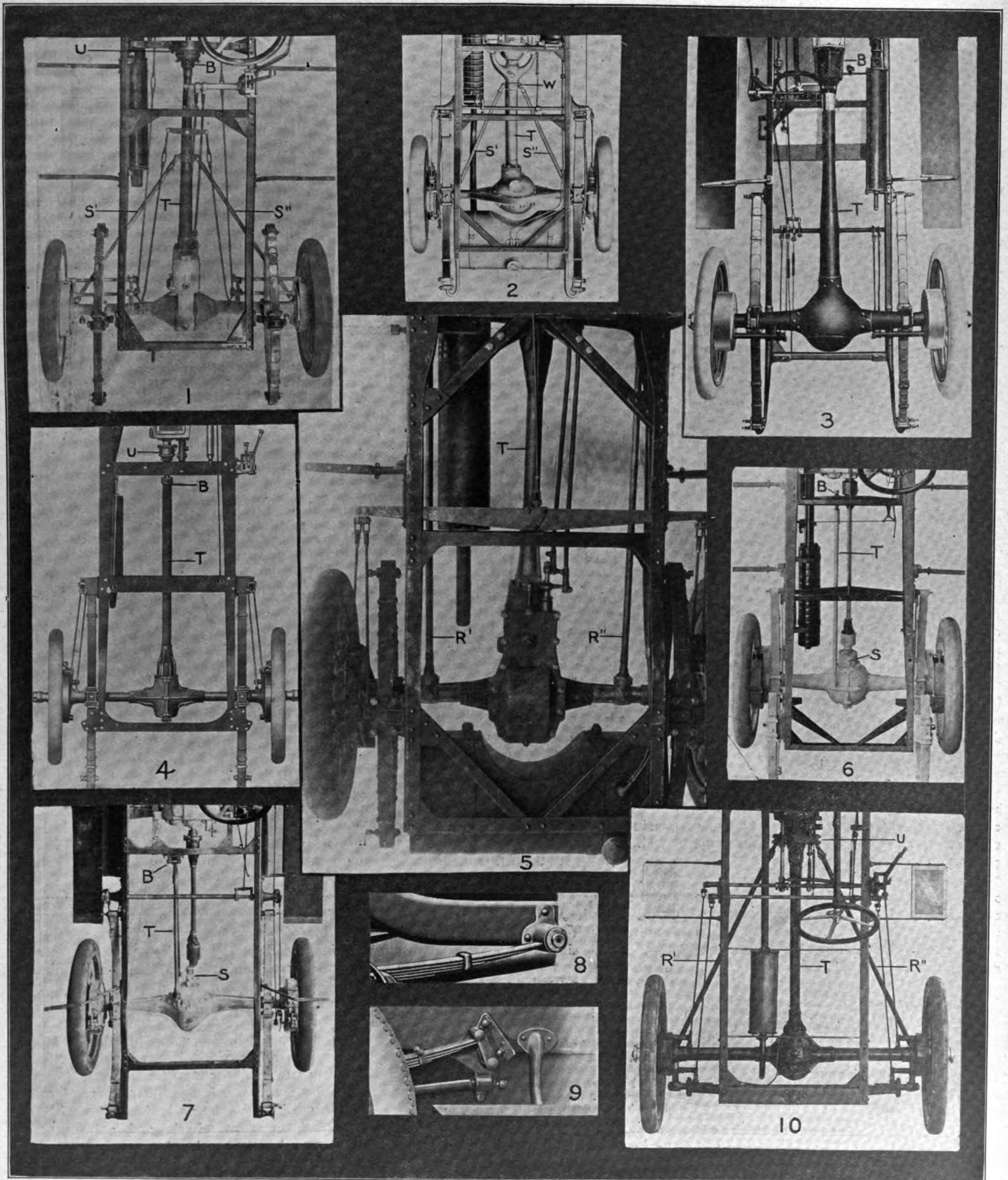
The necessity for separate radius rods also is obviated in a number of cases by causing the rear springs themselves to perform the functions of the former. This, of course, entails that the front ends of the springs be rigidly attached to pins on the frame and not mounted on shackles, as is done when the torsion tube acts as a radius member or when separate radius

rods are fitted. When the spring drive is used, a representative method of attaching the springs, which is illustrative of Cole "30" practice, being shown in Fig. 8, a separate torsion rod or bar is necessary unless a torsion tube is used. The difference between radius rod drive and spring drive is shown clearly in Fig. 9, which shows a typical form of radius rod drive, the Winton.

While torsion rods invariably must be attached rigidly to the rear axle, the differential housing being most generally used for this purpose, they must also be flexibly attached to the chassis frame to permit of their moving so as to suit the movement of the springs. Various arrangements of joints are in use, but one of the most effective, and incidentally the one which is most used, is that in which the end of the rod is formed into a ball which is carried in double sockets, the sockets being held in position top and bottom by means of springs. Owing to the motion of the springs when the car is travelling over uneven road, it not infrequently happens that one of the springs is compressed to a greater extent than is the other. This produces a small amount of motion at the end of the rod, and also when both springs are equally compressed there is a certain amount of lateral movement. As the end of the rod is flexibly connected, it is permitted to move according to the movement of the springs and at the same time it is sufficiently rigid to take up the torque.

Theoretically, in order to allow of the same relative movement of both propeller shaft and torque rod, these two members should be made exactly the same length. In practice, however, the length of the torque rod frequently is approximated, merely for ease of manufacture, and the slight difference of movement, owing to the difference of length of the two, is provided for by making the joint to which the front end of the rod is attached a hinged member, hinging from the chassis frame. This is permissible because the torque rod never takes any part of the drive unless it is designed to do so, as in the case of some cars in which a torque tube enclosing the propeller shaft is used and in which separate radius rods are not employed.

In the case of chain-driven car, for instance, the tendency is for the chains to drag the rear wheels and axle directly forward toward the front axle. Exactly the same tendency exists in shaft-driven cars, owing to the traction of the wheels on the ground. If no means was provided to maintain the axle in its proper position, it would be forced forward and probably



1—Flanders Torsion Tube and Strut Rods. 2—Stearns Swivel-jointed Torsion Tube. 3—Ohio Spring Drive and Torsion Tube. 4—Hudson—Another Form of Spring Drive and Torsion Tube. 5—Matheson Separate Radius Rods. 6—Premier Spring Drive and Separate Torsion Rod. 7—Pullman Triangular Torsion Rod. 8—Cole Spring Connection. 9—Winton Radius Rod Drive. 10—Hupmobile combination Strut and Radius Rods.

would cause the propeller shaft to buckle, providing the springs and spring seats were not strong enough to withstand the drive. To relieve the springs and the propeller shaft of strain—in fact, to take all the drive—is the principal function of the radius rods.

Theoretically, the radius rods also should be the same length as the propeller shaft, for the same reason that the torque rod should be, viz., to allow of the same relative movement between them. When for any reason it is made shorter or longer than the propeller shaft it is necessary to place a slip joint in the shaft to allow for the difference of motion. When the rear springs are compressed the rear axle moves upward in the arc of a circle, the size of the circle being governed by the length of the radius rods—hence their name. As the axle cannot swing on more than one arc at a time and as the radius rods control the radius of the arc on which it does swing, then some provision for automatically shortening and lengthening the propeller shaft must be provided, and this is accomplished by using a slip joint in the shaft.

But even with torque rods, or bars, and radius rods thus defined—the torque rods being merely to take the torque and not the drive, and the radius rods taking the drive and governing the radius of the arc on which the rear axle swings—and their differences pointed out, each are in such varied forms that it often is difficult for the purely lay mind to differentiate between them. Even with the help of illustrations, the arrangement still may be confusing, as, for instance, the Flanders chassis which is illustrated in Fig. 1 in the accompanying plate.

In this case, neither radius rods nor a torsion rod is used, though the arrangement of the two rods designated S' and S" might lead to the suspicion that either one or the other was employed. As a matter of fact, both the drive and the torque are taken by the torque tube, T, which is arranged with a ball and socket joint, B, to allow of the tube moving both up and down and circumferentially, thus taking the place of the radius rods used on other cars. The two rods, S' and S", are merely struts which are used to maintain the relative positions of the axle and the torque tube, which moves from the center of the universal joint at U.

A very similar arrangement is shown in the Stearns chassis, which is illustrated in Fig. 2. It differs from the other, however, in that though the struts, S' and S", serve the same purpose and are in practically the same place, the torque tube, T, is carried out into a yoke, where it is joined to the cross member of the chassis frame, the joints being hinges in action. But as the tube is subject to a certain amount of circumferential movement when one of the rear springs is compressed more than the other, and as it would be liable to fracture

unless some means of allowing such movement was provided, a swivel joint is placed at W. In this design, as in the other, the torque tube performs double duty, so to speak—it takes both the torque and the drive.

Hupmobile construction, which is illustrated in Fig. 10, differs radically from both of the others, though a purely superficial glance at the illustration might lead to the supposition that it was practically the same. The rods, R' and R", are both strut and radius rods and perform the functions of both, which is to say that in addition to maintaining the relative positions of the axle and the torque tube, T, they also take the drive and control the radius of the arc in which the rear axle swings. They are hinged at a point exactly in line with the center of the universal joint at U, and as they are the same length as the propeller shaft a slip joint in this shaft is not necessary.

A torsion tube, T, also is used in the Matheson chassis, which is depicted in Fig. 5. The radius rods, R' and R", however, are entirely separate, and as may be seen, are placed one on each side of the chassis. In performing their function, which is to take the drive, they also serve to maintain relationship of the axle and the torsion tube. As they are the same length as the propeller shaft, hinging at the center of the universal joint at the front end of the shaft, a slip joint is not necessary.

Neither radius rods nor a torsion tube is used in the Pullman chassis, which is shown in Fig. 7, the torsion being taken by a regulation torsion rod or bar, and the drive being taken by the springs, the front ends of which are rigidly mounted on pins on the chassis frame. The torsion rod, T, is in reality two rods which are joined at the forward end and attached to a cross frame member by means of a ball and socket joint; one of the two rods is attached to the bottom of the differential housing, and the other is attached to the top. As the radial action of the axle is governed by the springs, and as the arc in which the axle swings is of a smaller circle than it would be if axle swung from the center of the front universal joint, it is apparent that a slip joint is necessary in the propeller shaft. It is provided at S.

Ohio construction, illustrated in Fig. 3, provides a torsion tube, T, but no radius rods, the drive being taken by the springs in a manner similar to that heretofore explained. The front end of the torsion tube is carried in a ball and socket joint at B, the necessary slip joint also being enclosed in the same casing. The Hudson arrangement, as shown in Fig. 4, is quite similar in that the drive is taken by the springs and the torsion by the torsion tube, T, though it differs in so far as the torsion tube is concerned; this is not mounted in a bearing on the chassis frame, but is carried at the front end in a bearing, B, on the propeller shaft itself.

Differing from all the others, the Premier arrangement, shown in Fig. 6, provides a torsion rod proper, T, rather than a torsion tube, though in it the spring drive is employed. As in the former cases, and, in fact, in all instances where spring drive is used, a slip joint in the propeller shaft is provided, this member being at S in this particular car. The front end of the torsion rod is mounted in the ball and socket joint, B, on a cross-frame member.

It has been said that "of the making of books there is no end," and with equal aptness the same saying, slightly paraphrased, would apply to the construction of automobiles, which is to say that the number of ways in which the component parts may be arranged is almost without limit. Though certain methods have become standard, always new methods are cropping up, some to supplant older ones, possibly only for a time, and others to be relegated to the junk heap almost before they have become realities. Nine times out of ten, however, the principle involved remains unchanged, and though it would require an infinite amount of time and labor faithfully to describe the workings of all, this seldom is necessary. If the fundamental principles are firmly grasped, the embryo student of automobile engineering, or the owner who is merely curious, or who desires through the medium of acquired knowledge to facilitate repair work or to obviate it as much as possible, need go little further—for instance, radius rods, whether they be separate or combined with the torsion tube or the springs, always take the drive and assist in the maintenance of the relationship of the propeller shaft and the rear axle, and torsion rods, bars or tubes take the torsion, in other words, cause the effort to be applied in the proper direction.

Tire Exports Near to Two Millions.

During the month of May last, \$310,346 worth of American made automobile tires were exported to foreign ports, and together with \$59,194 worth of tires of other classes, the shipments representing in the aggregate a gain of nearly \$100,000 as compared with April's shipments. For the 11 months ending with May, the total value of automobile tires exported was \$1,838,482, and of other tires it was \$538,407. Comparison with previous totals is impossible, as the separate listing of tires was not commenced until July, 1910.

Army Buys Trucks for Use in Manila.

The Philippines government, which about a year ago raised a mild storm about its ears by purchasing several made-in-Europe motor vehicles, has profited by that experience. It just has placed another order for trucks, which this time went to an American manufacturer, the White Co. The order calls for seven gasoline trucks, which will be employed by the Quartermaster's Department of the United States Army in Manila.

Perplexities of Reckoning Motor Truck Costs

Figuring on the cost of motor truck operation is just about as satisfactory a mathematical exercise as trying to determine—in advance—whether two can live cheaper than one. A great deal depends. The sale of aigrettes may be forbidden by law, but the price of millinery continues to advance in a measure beyond the foresight of the prospective and wistful bridegroom; similarly a stretch of rutty road, hitherto unmarked, may lie between the truck owner's loading platform and the depot that will set him back just about \$200 a year in tires and other upkeep expense. To make the comparison brief, there are a lot of little things that are apt to intrude when least expected and which it is difficult, if not impossible, to reckon on in advance.

Hence one of the difficulties that heretofore has intervened to check the sale of trucks. The interested or intending manufacturer or tradesman always wants to know, as he is pretty apt to put it, 'just about where he is "going to get off." The truthful salesman, however, has been—and still is—in the unhappy position of being able to inform him only where he is going to get on, so to speak. As to the cost of operation, he must introduce a bewildering number of "ifs" and "abouts." Nor is there immediate hope of the atmosphere being clarified. At the same time it is known on perfectly good and unquestionable authority that motor haulage is proving cheaper than horse haulage, when rightly applied—in many cases to a phenomenal degree. To reduce the advantage to terms of cents per mile, or cents per ton, or per package, or per load, or per anything else, at the present time seems impossible.

A ray of hope for the perplexed and inquisitive prospect that approaches the dimensions of a large and luminous beam is projected by one happy circumstance. That circumstance is that salesmen are wearying of dealing in uncertainties, that truck builders are beginning to tire of the importunities of puzzled salesmen; in fine, that the trade is beginning to take notice of the sad deficiencies of its selling equipment. Guarantees and maintenance contracts do not answer the purpose. Besides sometimes these instruments prove expensive.

Evidence that the study of the cost problem has begun in the right way is not lacking. At its meeting last week, members of the Motor Truck Club, of New York City, listened to a paper on the subject which was read by A. N. Bingham, sales manager of the truck department of the Hewitt Motor Co., of this city. Afterward the members aired their individual views

on the subject to some extent. The following evening, that is, Thursday, 29th ult., the Metropolitan section of the Society of Automobile Engineers had the same general topic under informal discussion. From the latter circumstance it is not impossible to conjecture that ultimately, when sufficient interest has been aroused and a proper willingness to co-operate expressed, the S. A. E. itself may find means to bring its hard-working standards committee to develop a system of motor truck cost keeping.

All along the line it appears that this is the chief cause of uncertainty, and the real reason for the dearth of reliable information concerning the cost of working commercial vehicle equipment, that no two men are agreed in every respect as to the most suitable way of reckoning. Practically all the elements of uncertainty are recognized, but different authorities are inclined to regard them in different lights or to place different values on them. So it is quite as much a uniform method of attacking the cost problem as an exact knowledge of costs that is required just now. Cost figures may be obtained in abundance, even at the present time, but they cannot be relied on to mean the same thing.

The amount of the story is that there are too many variables entering into the cost problem to render it an easy one of solution. Road surfaces vary in different localities, and in the same localities under different weather conditions, grade conditions vary, speeds under load and without load are widely variant, loading conditions with reference to the nominal capacity of the vehicle differ according to local circumstances, the mileage per day is an unstable quantity in different installations, as is the relation between the distances travelled under load and empty, and the relation between useful and idle periods, or, in other words, the ratio of operating times to idle times.

Other factors that are far from standard are manipulation, that is to say, the relative judgment, skill and ability of the driver, the condition of the vehicle, with respect to adjustment and repairs, repairs, which depend on the durability of the machine, the conditions under which it is used and the balance between replacements and re-fitting requiring a considerable amount of hand work. Wages, fuel, oil and supplies costs and garage rentals or the corresponding fixed charges, likewise are subject to territorial differences, though fairly stable for any given locality. Garage charges, however, depend on the number of machines to be housed, as well as on the demands of the operator's business in other

respects. Thus, by way of illustration, if, for purposes of economy, the equipment is garaged at some distance from its normal working zone, the actual running costs involved in taking the rolling stock to and from work should become a part of the garage expense.

Apart from all these considerations, the first cost of machines of different makes is variable, that is to say, the cost per unit of carrying capacity. Hence, interest charges are not standard, and depreciation, which is practically a summation of all the foregoing particulars lumped in terms of a percentage unit, is no less uncertain than any of its components. Furthermore, it may be added by way of conclusion, that a considerable number of these variables are active, where several machines of the same make are at work in the service of the same operator, and several of them during different periods in the operation of any given machine. How then, is it possible to arrive at even a fairly representative average figure for expressing the cost of motor vehicle haulage? Or, to take it another way around: When it is stated that a certain truck that has been in use for six months has worked out an operating cost of 13 cents per ton-mile, exactly what does that mean?

About a year ago the unsuspecting public was regaled with a series of ton-mile figures representing the outcome of several motor truck "endurance contests." In one instance a truck entered in the one-half to three-ton class was credited with a ton-mile cost of 68 cents, in another instance a five-ton truck only cost a mere matter of 88 cents per ton-mile. Nor was the public enlightened as to the fact that while, as it was possible to discover by close reading, these figures represented only fuel and oil costs under certain stated conditions, the actual running of an average machine involved a great many items of expense which were not accounted for in the "records" of 68 and 88 cents, respectively.

Apropos of which it is related of one man whose name is almost a watchword in the trade, that when the last show season approached he decided it was about time to afford the public a few real facts in respect to the operation of trucks. Calling to him a sales engineer in his employ, he bade him gather all the figures he had in hand concerning the operation of the trucks which he produced, and after editing them carefully, to prepare a detailed statement of what it really ought to cost to run a really good truck under really favorable conditions. As he commanded, so it was

done, and in due process of time the new catalog appeared embellished with a page devoted to cost figures, figures that were a credit to the maker and to the industry, it may be added, without fear of contradiction.

Some of the beautiful new pamphlets were taken to the show and distributed among the stands, others were placed ready to the hand of the inquiring visitor and the plunder bag of the chronic catalog fiend. Then, suddenly, arose a great clamor in the camp of the manufacturer in question. Hurry calls were sent out for the engineer, for salesmen of his staff and for all the minions of the large organization. Spake the voice of authority, albeit in accents hushed:

"Send after every one of those catalogs! Get back every one you can and set a few boys to work tearing out that leaf with the cost figures on it. Have you seen the other makers' catalogs? Well, they've all got cost figures in 'em, and it's a cinch if anybody got hold of our book after seeing one of theirs we'd never, never sell a single car."

"If you ask me how much it costs per cab-mile to run a string of taxicabs, I will answer, 'I don't know,'" was the remark of Wm. H. Palmer, Jr., when asked to express some of his ideas on the cost question at the engineers' meeting last week. Palmer, who is secretary of the New York Transportation Co., is a mild-mannered young man of a decidedly analytical turn of mind. Besides, he has had a great deal of experience in solving the practical problems of motor cab operation both in New York and elsewhere. Cab operation, be it added, is, as he was not slow to explain, nothing more nor less than commercial vehicle operation applied to a specific class of vehicle. Cab operators are inclined to think theirs is the most difficult class of commercial vehicle to handle profitably. Motor truck men, on the other hand, are firm in their stand that it is about as easy as anything imaginable. Those who do not wish to stand in judgment between them are at least willing to concede that the cabman and the truckman are engaged in parallel pursuits.

"I don't know how much it costs to operate a string of taxicabs, if you ask me just that and nothing more," said the secretary of the Transportation company. "In return I shall be forced to ask how many cabs you have in mind, how many miles a day they run, how many passengers they carry, what your rates are, how many hours each cab is in service and what proportion of its mileage is useful mileage. When you have answered those questions, and not until you have answered each and every one of them, will I be in a position to begin to give you an idea of how much your operating cost should be. Taxicab accounting is as complicated as railroad accounting, only more so. You have practically all the elements to contend with that you encounter in railroad work and several others besides. In order to get at the operating cost,

it is necessary to separate each individual item and classify it by itself. Not until you are able to do that can you arrive at an intelligent idea of what it really costs to run a commercial vehicle."

Another point brought out by the same authority is that the requirements of motor vehicle accounting are peculiar to the industry. "If you put the matter in the hands of a professional accountant or cost expert," said he, "he will find out all about your service, but he may not be able to tell you just what you want to know. He may be able to discover what it actually is costing to run your equipment, but at the same time he may not be able to tell you where your cost is higher than it should be and why, nor whether you are getting the best possible results out of the machines you are using, whether your equipment is as well suited as some other might be."

"I remember the case of a manufacturer in this city who invested in a truck of well-known make a year or two ago, and who, by careful overseeing succeeded in keeping it in excellent condition and in running it economically," contributed another speaker. "And yet he found the truck service was costing him more than it had cost with horses. Although the truck was being given every possible advantage, and in cost figures seemed to show an advantage, it was not suitable for his work for the reason that he happened to be the manufacturer of a certain very light commodity that required very careful packing and formed an exceedingly bulky load. He was losing so much time in loading, that in the end he was forced to abandon the motor truck. He is now having his hauling done under contract by horses."

Enough has been said to show that no matter where the cost problem is attacked it fairly bristles with difficulties and that no matter in which direction a start is made, the seeker after knowledge is likely to arrive at the starting point sooner or later. Perhaps the item of depreciation is one concerning which more difference of opinion exists than any other and on which it is possible to hinge more than one heated argument by way of mid-summer pastime.

As it generally is viewed, depreciation is a method of expressing the ageing of the vehicle, its general deterioration under use. Concretely expressed, depreciation has come to mean a certain percentage of the cost of the machine which is charged against it each year, on the assumption that at the end of a stated period the depreciation fund will have grown to equal the original cost, thereby defraying the cost of a new machine or serving to perpetuate that one, according to the fancy of the individual owner. The term thus is being confused more or less with what, in the language of the street—not the abiding place of "the man in the street" but the home of high finance—is known as amortization. Depreciation thus is frequently held to be

a definition of the life of the truck. If the probable life is regarded as three years, 33⅓ per cent. of its first cost is "written off" or charged against the machine each year, and a suitable proportion of that figure enters into the "overhead" expense in figuring its cost of operation per mile or per ton or per whatever happens to be the fancy of the accountant. In this way the truck may be said to pay for itself in the given period.

As to just what the length of that period should be, however, authorities differ. Of course, no harm is done if too high a figure is taken. The only difficulty is that in that case the operating expense will become unfairly high. As far as the accounts of the individual machine are concerned, there will be no difficulty. Some commercial vehicle men would assess the life of their trucks at three, some at five, some at ten or fifteen years.

"To my way of thinking, the idea of basing depreciation on the life of the vehicle is all wrong," remarked Wm. P. Kennedy, chairman of the engineers' meeting. "If you say the life of a truck is going to be three, or five, or seven years, you take no account of the fact that some machines are run almost wholly in summer, that others run practically all the time, year in and year out, that still others are run intermittently. A better way of getting at it is to base the depreciation on mileage."

But here again is room for question. Shall mileage be taken to mean mileage under load—the real service of the truck? Shall it mean total mileage? or shall an allowance be made for idle mileage, taking into account the ratio between dead and live running?

Supposing one machine carries its average load the whole length of its normal haul, while another may be used for store delivery work and drops its load a few pounds at a time until it is empty. What shall be the distinction in mileage between two such vehicles, supposing them to be compared with depreciation in mind? Again, "authorities differ." The tire men, however, who have troubles of their own, are accustomed to call miles, just miles. "It is not scientific," as someone explains, "but it is the best that can be done."

A foreign truck expert who, since his arrival in this country, has gained considerable newspaper publicity, is of the opinion that mileage, straight mileage, is the proper basis, and that the maximum mileage life of a batch of trucks of a particular make should be the starting point. With 150,000 to 200,000 miles of service to the credit of certain trucks which this expert has in mind, his conscience enables him to bring the depreciation down to between 2½ and 3 cents a mile. One of the better known American makers, it developed at the engineers' meeting, is pursuing the same general plan. Chairman Kennedy's ideas of the subject carried him further than thus far has appeared.

"The truck is a composite structure," he said in so many words, "and the art has not yet reached a point where all its parts are of equal life. Therefore the actual depreciation of the vehicle is measured by the depreciation of its elements; as these are replaced as fast as they wear out or give out, the true way of getting at the real figure is to consider each part individually and assign to each a normal life. The truck can be divided into groups of parts as active and inactive, so to speak. Certain of the latter, a well-made frame, a good wheel, an engine base or a spring that is of the right proportions, may last almost indefinitely, barring accident. Bearing surfaces, on the other hand, and those that are subjected to abnormal strains, do not last as long. When you treat the problem in this way you find that the life of the vehicle is prolonged and that as far as depreciation in real usefulness is concerned, no sort of actual decay can be discovered."

"Depreciation is really a matter of obsolescence," said W. H. Palmer, previously quoted. "If you go on replacing wearing parts as fast as they become inefficient, your vehicle as a whole will remain as efficient at the end of three years as at the end of six months; it will continue to remain so until a time comes when you want to replace it with something better and more modern. Therefore the real depreciation of the machine is measured by its antiquity."

Still the fact remains that by getting down to mileage as more exact than the mere time element, no measure of actual load-bearing service is taken; but supposing someone were to devise a way of accounting for the actual wear in terms of, say, load carried, there still would be the uncertainties of the highway to cause divergencies from average results.

The entire difficulty of proper motor vehicle accounting is admitted to center about the details of maintenance, that is, of the elements that are governed directly by the service—the variables in any given case or any group of cases. To arrive at the real cost of truck operation, this difficulty must be surmounted by long, patient attention to the many details that enter into account, and a uniform system of recording cost data must be devised and introduced. Then, and then only, can the salesman tell the prospective customer what it really ought to cost him to run a truck in his line of business.

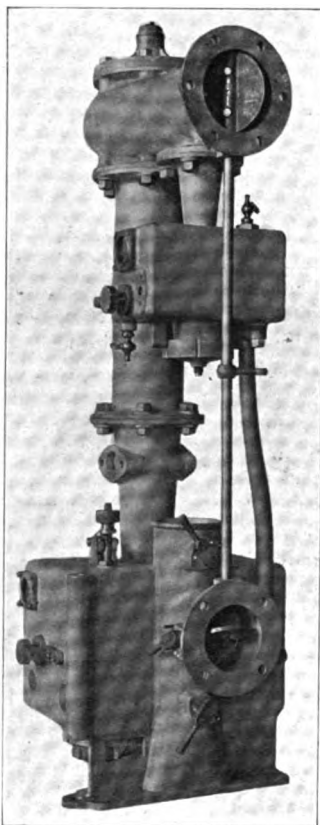
Even then, the salesman will not be able to tell the "prospect" how much he can save by using trucks. And for a very good reason. The "prospect" probably will have no idea what his horse haulage is costing him. Horse owners never do know.

One truck expert, anxious to increase his fund of information, sent out a special inquiry blank to 300 horse users, requesting particulars of their haulage problem. But three of the 300 forwarded replies from

which an intelligent idea of what horse haulage was costing could be obtained. Another truck engineer, obtaining a copy of one of the former's circulars, approved of it, and stole it for his own purposes—at least he says he did—adding thereto certain further inquiries of his own. Of the one thousand circulars sent out in revised form, a good share of returns came back. But not one on which was noted a single answer that would shed any light on the welfare of the horse.

Carburettors of Heroic Proportions. —

Many motorists familiar only with the compact little carburetter which renders



STROMBERG JUMBO CARBURETTER.

them good service, scarce can conceive a similar instrument nearly five feet high. Mention of it suggests a "freak" or freakish purposes, but that such carburetters actually are in practical use is attested by the accompanying illustration of a Stromberg carburetter, which is nearly five feet tall and which drives an eight-cylinder "V" shape 8 x 10 valve-in-the-head motor operated at about 600 R.P.M. and delivering 125 K.W. Twelve of these immense carburetters have been built by the Stromberg Motor Devices Co., of Chicago, for the Chicago General Electric Co. They are the first installment of an order for 300, which are to be used on electric-driven self-propelled interurban cars.

Slow Growth of the German Truck.

According to statistics recently issued,

Germany produced only 636 freight automobiles during the year 1909. Of this number 162 were of the one ton class, 130 of the three ton class and 344 of more than three tons. The increase over 1908 was 221 trucks. In that year, of those built, 112 were of the one ton class, 78 of the three ton class and 228 over three tons, making a total of 415, which was 19 more than the product of 1907.

Moving Pictures to Test Drivers' Fitness.

Hereafter all applicants for license to drive motor vehicles in England will have to undergo a medical examination. A notice to this effect has been served on all the proprietors of mechanically driven public service vehicles. The movement was brought about by the Assistant Commissioner of Police of London, who is determined that no driver will be licensed who has not passed a rigid examination. The tests will be made in a specially prepared room. Among other things, an automobile will be raised from the floor, in such a manner that the wheels can be propelled, at various speeds, without moving the car. In front of the driver moving pictures will be thrown upon a screen representing conditions that may arise during a trip. The room will be dark, but the steering wheel and levers will be so illuminated that the examining physician can see what the driver would do in event certain things happened. Although the applicant realizes the automobile is stationary he knows every move of his will be noted, and therefore has to be watchful. Such scenes as a child crossing the path of the automobile, and others calculated to make the driver nervous, will be displayed.

"Mercer Magic" Told in Print.

The performance of the two Mercer raceabouts in the 500 miles International Sweepstakes on the Indianapolis Speedway on Decoration Day has been made the subject of a little pamphlet by the Mercer Automobile Co., of Trenton, N. J., entitled "Mercer Magic." It frankly admits that the cars were entered in the big race without expectations of winning, but "to show the public that it was not necessary to build special cars with tremendous motors which are of no commercial use, in order to go the distance and still stay with the big fellows." This the Mercers did—to the tune of 67 miles per hour, though they had a piston displacement of only 300 cubic inches.

Where Automobile Thieves Are in Clover.

According to the Chicago police records, forty-nine automobiles were stolen in that city during the month of June. They were valued at over \$125,000. Few of them have been recovered. The new automobile law, which went into effect July 1, and which inflicts heavy punishment for such thefts, it is thought, will have a tendency to decrease the crime.

MINNESOTA MOST NOTABLE TOUR

Failure of Glidden Contest Adds Importance to Northwestern Event—Rich Prizes and Splendid Arrangements.

Bearing the distinction of being the only reliability run to boast the attendance of a special train of Pullman cars for the accommodation of contestants and others who may swell the procession without participating, the third annual reliability contest of the Minnesota State Automobile Association, to be held July 20 to 28, inclusive, and otherwise known as the Twin City to Helena Tour, gives promise of being "the" reliability run of the year, since the indefinite postponement of the Glidden Tour. Already 28 entries have been filed—eight of them are non-contestants—and the promoters are sanguine of at least 50 before the start is made.

The special train which will accompany the tourists, or rather which will just precede them, getting into all noon and night controls ahead of them, will be practically a hotel on wheels, meals and berths being provided at a nominal sum for all who desire them. In addition it will carry a special automobile repair car, and provision has been made for the carrying of spare tires and other luggage with which reliability tourists generally are deluged. For those who do not care to make the return journey by automobile, arrangements have been made whereby cars may be shipped back to the starting point at a reduced rate. That the trip will be a strenuous one is evidenced by the fact that the pathfinders were forced to give up before they had completed their labors.

Three states in all will be entered during the 1,285 miles run, and the natives of practically every town or city to be visited are prepared to enliven the program with various diversions, ranging from fishing trips to balls. All day Sunday, 23d inst., will be spent at Devil's Lake, N. D., where motor boating and other special features will be inaugurated.

The run is designated as a third grade reliability contest, according to the rules of the American Automobile Association, which is to say that penalties will be imposed for time and actual road work only, preliminary and final technical examinations being omitted. The longest single day's run is 210 miles, between Malta and Great Falls, Montana, and the shortest, which, incidentally, is the last, from Great Falls to Helena, Montana, is 110 miles. Unusually rich trophies are up for competition, their aggregate value being upward of \$3,000. Four of the trophies, the Special Helena trophy for the driver who makes the greatest mileage and stays in Montana the longest, the Despatch trophy

club prize, the Minneapolis Journal trophy first prize, the Reuben Warner, Jr., trophy second prize, and the James Gregg trophy third prize, will be awarded to the drivers, and in addition there are a number of trophies to be awarded to the counties and states in which the motorists encounter the best roads. As an additional incentive, all the winning drivers will be presented with gold medals. Naturally the first prize, which is offered by the Minneapolis Jour-



MINNEAPOLIS JOURNAL'S MINNESOTA TROPHY.

nal, is the bone of contention; it was designed and executed by Reed & Barton, of New York, and as the accompanying illustration suggests, is a fit compeer of the Glidden trophy itself.

North Dakota Forms State Association.

Automobile owners of North Dakota met in Fargo, N. D., last week and formed the North Dakota Automobile Association, with the following officers: President, W. J. Price, Fargo; vice-president, Dr. T. O'Brien, Wahpeton; secretary-treasurer, Seth D. Richardson, Fargo; directors—Hector Barnes, Fargo; F. D. King, Coopers-town; A. G. Divet, Wahpeton. The association will affiliate with the American Automobile Association.

Sprague Elected to Lead Omahas.

At the annual meeting of the Omaha Automobile Club of Omaha, Neb., the following officers were elected for the ensuing year: President, E. H. Sprague; first vice president, W. R. McKeen; second vice president, Gould Dietz; secretary and treasurer, L. C. Nash; directors, Ed George, Rome Miller, Frank Furay, S. A. Searle and Dr. Lord.

CONNECTICUT'S DOOR OPENED WIDE

Removes All Limitations from Non-Residents—Speed Limits Unchanged—New Requirements for Dealers.

Despite reports telegraphed and printed throughout the country, when the Governor signed the new automobile bill last month, to the effect that Connecticut had abolished all speed limits, the Nutmeg State has done nothing of the sort. As previously was the case, speeds in excess of 25 miles an hour anywhere, or 10 miles when the view is obstructed in cities or towns, or three miles an hour when passing a halted street car, will constitute prima facie evidence of unreasonable and improper speed.

The changes made by the law, most of which do not become effective until January, 1912, are not of a radical nature and aim chiefly to correct certain internal evils, as, for instance, the abuse of the use of dealers' number plates; the section dealing with revocation and suspension of licenses has been greatly amplified. So far as non-residents are concerned, the new law is more liberal than the old one. The latter gives them but 10 days' leeway; the new one removes even that limit, and it is in no way hedged by definitions of reciprocity. In other words, Connecticut's door will be open to all comers and without charge.

This feature of the law goes into effect on August 1 next, as does the revised scale of fees, which fixes a charge for commercial vehicles on a carrying capacity basis and places pleasure cars of all horsepowers on the same plane, viz., 50 cents per horsepower; previously, those of more than 25 horsepower paid 60 cents.

Among the more important provisions is one raising the driver's age limit from 16 to 18 years; another requiring dealers to file annually their certificates of appointment by the manufacturers whom they represent, and also, twice each year, reports of their sales; and still another requiring garage keepers to keep a record of all "transients" and the operators of such vehicles—other than owners—to sign such records and to register the times of their arrival and departure.

The full text of the law is as follows:

Definitions.

Sec. 1. Terms used in this chapter shall be construed as follows, unless other meaning is clearly apparent from the language or context, or unless such construction is inconsistent with the manifest intention of the legislature: "Commercial motor vehicles" shall include all motor vehicles designed or used solely for the transportation of merchandise or freight and all motor vehicles designed and used as omnibuses for the transportation of passengers on the payment of individual fares. "Dealer" shall include every person who is actively engaged in the business of buying, selling, or exchanging motor vehicles and who has an established place of business. "Intersecting highway" shall mean any highway which joins another at an angle, whether or not

it crosses the other. "Liveryman" shall include every person who, whether engaged in buying, selling, or exchanging motor vehicles or not, maintains for hire one or more motor vehicles. "Motor cycle" shall mean a motor vehicle having but two wheels in contact with the ground. "Motor vehicles" when used in this act, except when otherwise expressly provided, shall include all vehicles propelled by any power other than muscular, except road rollers, street sprinklers, fire engines and fire department apparatus, police patrol wagons, ambulances, and such vehicles as run only upon rails or tracks. "Non-resident" shall apply to any resident of another state or country who has no regular place of abode or business in this state for a longer period than one month in the calendar year. "Number plate" shall mean the sign or marker furnished by the secretary on which is displayed the register number assigned to such motor vehicle by said secretary. "Operator" shall mean any person who operates a motor vehicle. "Person" shall include any corporation, association, copartnership, company, firm, or other aggregation of individuals which owns or controls any motor vehicle as owner, or for the purpose of sale, or for renting as agent, salesman, or otherwise. "Police officer" or "officer" shall include any constable or other official authorized to make arrests or to serve process, provided he is in uniform or displays his badge of office. "Register number" shall apply to the number or mark assigned by said secretary to a motor vehicle, whether or not such number or mark includes a letter or letters. "Secretary" shall include the secretary of the state and the deputy or acting deputy secretary of the state.

Registration of Motor Vehicles.

Sec. 2. Every owner of one or more motor vehicles shall file annually in the office of the secretary, on a blank furnished by said secretary: (a) a statement of his name, residence, and postoffice address; (b) a description of each motor vehicle owned or controlled by him, including the name of the maker, the number, if any, affixed by the maker, in the case of a commercial motor vehicle the carrying capacity advertised for said vehicle by the maker thereof, the character of the motor power, the amount of such motor power stated in figures of horse power, such horse power, in the case of internal combustion engines, to be determined in accordance with the formula adopted by the Association of Licensed Automobile Manufacturers, and in the case of steam and electric motor vehicles the amount of such horse power to be taken as advertised by the maker thereof, and for such motor vehicles as have two ratings of horse power the registration to be based upon the higher rating; (c) such other information as shall be required by said secretary. Said secretary shall then register such motor vehicle, if such owner is, under the provisions of this act, a proper person to receive a certificate of registration, shall assign to such motor vehicle a distinguishing number or mark, and shall thereupon issue to the owner thereof a certificate of registration which shall contain the name, place of residence, and post-office address of the owner, and the number or mark assigned to such motor vehicle, and shall be in such form and contain such further information as said secretary may determine; and such certificate shall at all times be carried upon such motor vehicle and shall be subject to examination upon demand by any proper officer. An applicant for the registration of a motor vehicle who does not file his application therefor until after the last day of March in any year shall be entitled to a pro-rata reduction in the fee for such registration calculated to the first day of the month in which application is made. Upon the transfer of ownership of any vehicle its registration shall expire, and the person in whose name such vehicle is registered shall return, forthwith, the certificate of registration to the secretary, with a written notice containing the date of such transfer of ownership, and the name, place of residence, and post-office address of the new owner. A person who transfers to another the ownership of a registered motor vehicle owned by him, upon the filing of a new application and upon the payment of the proper fee, may have registered in his name another motor vehicle for the remainder of the

calendar year, provided the horse power of such other motor vehicle is the same or less than that of the motor vehicle registered by him the certificate of which has been surrendered; but if the horse power of such other motor vehicle is greater than that of the motor vehicle the certificate of which has been surrendered, the applicant shall pay, in addition to said fee, the difference between the fee paid by him for the surrendered certificate and the fee for the registration of the motor vehicle of the higher horse power. The certificates provided for in this section and in section three shall continue in force until midnight on the thirty-first day of December of the year in which issued.

Sec. 3. Every dealer in or manufacturer of motor vehicles may, instead of registering each motor vehicle owned by him, make application to said secretary for a general distinguishing number or mark, and the secretary may, if satisfied as to the facts stated in said application, issue to the applicant a certificate of registration containing the name, place of residence, and business address of the applicant, and the general distinguishing number or mark assigned to him and made in such form and containing such further information as said secretary may determine, and every motor vehicle owned by such manufacturer which is used for the purpose of testing or demonstrating, and every motor vehicle owned by a dealer, shall be regarded as registered under, and have assigned to it, such distinguishing number or mark. Manufacturers and dealers shall not be required to carry such certificates upon the vehicles registered under the provisions of this section, but every person operating a motor vehicle registered under the provisions of this section by a manufacturer or dealer shall display on such vehicle, in such manner as said secretary may prescribe, the operator's license number assigned to such person. Every dealer in motor vehicles shall, at the time of making his application, file with the secretary a certificate of his appointment as agent or sub-agent by the manufacturer represented by him, and he shall, semi-annually, on the first day of January and July, file with the secretary a statement, under oath, of the number of motor vehicles transferred to him and by him since the last preceding statement; and every dealer in motor cycles shall, annually, on the first day of January, file a similar statement of transfers made to and by him. Every liveryman may, instead of registering, under section two hereof, each motor vehicle owned by him, make application to said secretary, on a blank furnished by said secretary, for a liveryman's license and shall state therein his name, place of residence, postoffice address, and give a description of each motor vehicle owned by him which is kept for hire, including the same information as is required under section two hereof, and such further information as said secretary may determine. Said secretary shall then register each motor vehicle kept by said liveryman for hire, if such applicant is, under the provisions of this act, a proper person to receive such certificate of registration, shall assign to each such motor vehicle a distinguishing number or mark, and shall thereupon issue to the owner thereof a certificate of registration which shall contain the name, place of residence, and post-office address of the owner, and the number or mark assigned to such motor vehicle, and shall be in such form and contain such further information as said secretary may determine; and such certificate shall at all times be carried upon such motor vehicle and shall be subject to examination upon demand by any proper officer.

Number Plates.

Sec. 4. Every motor vehicle shall, at all times while in use or operation upon the public highways of this state, have displayed in a conspicuous place, at the front and rear, the register number plates or markers furnished by the secretary. Said plates shall be of a distinctly different color each year and shall be in such form as said secretary may determine; shall bear the initial letter of the state; the figures of the register number thereon, except on motor cycle number plates, shall be not less than four inches high, and each stroke not less than five-eighths of an inch wide, and each digit thereof shall occupy a space not less than three and one-half

inches in width. The figures of the register number on motor cycle number plates shall be two and half inches high, each stroke three-eighths of an inch wide, and each digit shall occupy a space not less than two inches in width. Said secretary shall furnish, annually, without charge, one pair of number plates for each individually registered motor vehicle, one pair for each motor vehicle registered by a liveryman, and six pairs for each registered manufacturer or dealer, upon application therefor. Such number plates, upon such motor vehicles, shall, at all times be entirely unobscured, and the register number and letters thereon shall, at all times, be plainly legible. Said number plates shall be horizontal, and shall be so fastened as not to swing; the lower edges thereof shall be at least eighteen inches from the ground, and, during the times when a motor vehicle is required to display lights, the rear register number shall be so illuminated as to be legible at a distance of sixty feet. Not more than one set of number plates and one operator's license number plate shall be displayed on any motor vehicle in operation upon the public highways of this state. If any number plate supplied by the secretary is lost, or if the register number thereon becomes illegible, the owner or person in control of the motor vehicle for which such number plate was furnished shall immediately place a temporary number plate, bearing his register number, upon such motor vehicle; provided, that such temporary number plate and the register number thereon shall conform to the regular number plate and be displayed as nearly as possible as herein provided for said regular number plate; and said person shall, within twenty-four hours after such loss or mutilation of his number plate, as aforesaid, give notice thereof to the secretary and apply for a new number plate, and thereupon said secretary shall supply a new number plate upon the payment of the fee therefor, as hereinafter provided. In the event that said secretary is unable to furnish immediately to any person entitled thereto any plate or marker provided for by this section, he may issue a certificate to such person stating that such marker has been ordered and giving the number thereof.

Operator's License.

Sec. 5. No person shall operate a motor vehicle upon the public highways of this state until he shall have obtained from the secretary a license for that purpose, but no such license shall be issued until said secretary is satisfied that the applicant is over eighteen years of age and is a proper person to receive it. If any applicant for such license possesses any physical defect which might affect the operation by him of a motor vehicle, the secretary may require such applicant to show cause why a license should be granted him, and may require such applicant to demonstrate personally that, notwithstanding such defect, he is a proper person to operate a motor vehicle, and if the secretary be satisfied of the ability of such applicant, he may issue to him a license containing such limitations as to the vehicle to be operated under such license as the secretary shall deem advisable. Nothing herein contained shall prevent the operating of a motor vehicle by an unlicensed person sixteen years of age or more, other than a person whose application has been denied or whose license has been suspended or revoked, if accompanied by a licensed operator, which licensed operator shall be personally liable for any violation of the provisions of this act. Applications for licenses shall be made upon blanks furnished by said secretary, and such application blanks shall be in such form and contain such provisions, not inconsistent with this act, as said secretary may determine. A number shall be assigned to each license, and a proper record of all applications for licenses and licenses issued shall be kept by said secretary at his office, and shall be open to public inspection. Each license shall state the name, place of residence, and post-office address of the licensee and the number assigned to him, and such facts and provisions, not inconsistent with this act, as said secretary may determine. Every person licensed to operate motor vehicles as aforesaid shall, upon the receipt of his said license, endorse his signature on the back thereof, in a space provided for the purpose, and such license shall not be

valid until so endorsed. Said licenses shall expire at midnight on the last day of February in each year. Such license shall, at all times, be carried by the licensee when he is operating a motor vehicle upon the highways of this state, and shall be subject to examination upon demand by any proper officer.

Sec. 6. Any certificate or license for any operator which is issued by said secretary upon an application or statement which is untrue as to any material matter shall be void from the date of its issuance, and said motor vehicle operator shall be deemed to be unlicensed.

Motor Vehicle Equipment.

Sec. 7. Every motor vehicle of more than ten horse power, while in use upon the public highways of this state, shall be provided with at least two brakes, powerful in action, and separated from each other, of which one brake shall act directly on the driving wheels or on parts of the mechanism which are rigidly connected with said wheels. One of the two brakes shall be so arranged as to be operated with the feet. On any motor vehicle not exceeding ten horse power one brake shall be deemed to be sufficient. Every motor cycle shall be provided with at least one brake, which brake may be operated by hand. Every motor vehicle so operated shall be provided with a suitable bell or horn, and every motor vehicle, except a motor cycle, shall, during the period from one-half hour after sunset to one-half hour before sunrise, display at least two white lights on the forward part of said vehicle, and every motor cycle so operated shall be provided with at least one white light, which light or lights shall be visible not less than two hundred feet in the direction in which said vehicle is proceeding; every motor vehicle so operated shall have a rear light so placed as to show a red light from behind, and a white light so arranged as to illuminate the rear number plate in accordance with the provisions of section four. No motor vehicle shall be operated upon the public highways within the limits of any city or borough of this state at any time nor on any public highway between the hours of nine o'clock in the evening and six o'clock in the morning unless the engine of such vehicle shall be muffled while so operated. No motor cycle shall be operated at any time with its muffler open. No person shall use on any vehicle upon the public highways of this state, except upon fire apparatus or upon an ambulance, any siren horn for a signal.

Fees.

Sec. 8. The secretary shall collect fees as follows: for the registration of every motor cycle, two dollars; for the registration of every commercial motor vehicle, regardless of the horse power thereof, five dollars for the first one thousand pounds or fractional part thereof of carrying capacity as determined by said secretary, and two dollars for each additional one thousand pounds, or fraction thereof over four hundred pounds, above the first one thousand pounds of carrying capacity; for the registration of each motor vehicle operated for hire by a liveryman, ten dollars; for the registration of all motor vehicles owned by a dealer in motor vehicles, twenty dollars; for the registration of all motor cycles owned by a dealer in motor cycles, ten dollars; for the registration of every other motor vehicle fifty cents per horse power, said horse power to be determined according to the provisions of section two of this act; for the substitution of the registration of a motor vehicle, except a motor cycle, previously registered in accordance with the provisions of section two of this act, two dollars; except that in the case of a liveryman the fee shall be one dollar for each substitution; for the substitution of the registration of a motor cycle, fifty cents; for each motor vehicle engine owned by a manufacturer of motor vehicles and tested or operated on the highways of this state, one dollar, but every manufacturer shall deposit with the secretary upon making application for registration as a manufacturer, and in January of each year thereafter, twenty-five dollars, which sum shall be a minimum fee for every manufacturer so testing or operating less than twenty-five motor vehicle engines during the year, as shown by his annual statement, and shall be applied

to the total amount required to be paid by said manufacturer so testing or operating more than twenty-five motor vehicle engines during the year, as shown by his annual statement, and every such manufacturer shall, on or before December thirty-first in each year, make a written report, under oath, to the secretary, of the number of engines so tested or operated during the year last preceding; for each operator's license to operate motor vehicles, two dollars; for every additional copy of a certificate of registration or license, fifty cents; for every set of number plates furnished in addition to those allowed by section four, one dollar; provided, that the secretary shall furnish, without charge, copies of certificates and licenses and other documents relating thereto to officers of this state, or of any court thereof, or of any city, town, or borough therein, or to any official of any other state. No fees shall be collected for any motor vehicle owned by a municipality and used exclusively in the conduct of municipal business.

Revocations and Suspensions.

Sec. 9. (a) The secretary may suspend or revoke any certificate of registration or any license issued to any person under the provisions of this act, with or without a hearing, for any cause which he may deem sufficient, and may order such certificate or license to be diverted to him whenever he has reason to believe that the holder thereof is an improper or incompetent person to operate motor vehicles or is operating improperly or so as to endanger the public; and neither the license nor the certificate of registration shall be reissued unless, upon investigation, said secretary determines that the operator may again be legally permitted to operate. (b) Upon a subsequent conviction of any person for an offense involving a violation of section eleven of this act, or of operating a motor vehicle while under the influence of intoxicating liquor or drugs, or upon a wager, or in a race, or of going away without stopping and giving his name and address after causing injury to any person or property, the secretary shall immediately revoke the license of the person so convicted, and if any person convicted of any such offense a second time by a trial court shall appeal from the decision of said trial court, said secretary shall suspend, forthwith, the license of the person so convicted and appealing, and shall order the license delivered to him, and shall not reissue the same unless such person is acquitted upon such appeal, or unless the secretary, in his discretion, shall decide that said license should be reissued. If the operator so convicted a second time is the owner of a motor vehicle, or the bailee or employee of the owner and was the bailee or was employed by such owner when the first conviction was had, said secretary shall revoke the certificate of registration of such owner, or of the bailor or employer of the operator so convicted. (c) Whenever any license or certificate shall have been revoked under the provisions of this act, no new license or certificate shall be issued by said secretary to such person until after thirty days from the date of such revocation, nor thereafter except in the discretion of said secretary; and no motor vehicle, the registration of which has been so suspended or revoked shall be registered in the name of any person until at least thirty days from the date of suspension or revocation unless said secretary shall determine otherwise. (d) Whenever the death of any person results from any accident in which a motor vehicle is concerned, said secretary shall forthwith suspend the license of the operator of the motor vehicle involved in said accident and shall order said license to be delivered to him, and shall revoke the same, unless, upon investigation, he determines that the accident occurred without serious fault upon the part of such operator. No operator whose license is so revoked shall be licensed again within one year after the date of the revocation, nor thereafter except in the discretion of said secretary. (e) Notice of the revocation or suspension of any license or certificate of registration shall be transmitted forthwith by said secretary to the chief of police of the city or prosecuting officers of the borough or town in which the person whose license or certificate of registration so revoked or suspended resides. Said secretary shall revoke, up-

on due notice and hearing, (f) all the certificates and licenses of any person who shall loan or rent to any other person, or who shall permit any other person to take, any license, certificate, or number plate for use in or upon any motor vehicle other than the one for which it was issued by said secretary; (g) the license of any manufacturer or dealer who shall permit any person to use in or upon any motor vehicle not owned by said manufacturer or dealer any license, certificate, or number plate issued to such manufacturer or dealer by said secretary; (h) the license of any person who loans or rents to any other person, or permits any other person to use his operator's license. No new license or certificate shall be issued to any such person whose license or certificate has been revoked under subsection (f), (g), or (h) of this section, until after six months from the date of such revocation. In the administration of the laws and regulations relating to motor vehicles and to their operators, the secretary may summon witnesses in behalf of the state and may administer oaths and take testimony, and may also cause depositions to be taken and may order, when necessary for the carrying out of such provisions or of any of the powers granted him thereby, the production of books, papers, and documents. Any person who swears or affirms falsely in regard to any matter or thing respecting which an oath or affirmation is required by said secretary, or by this act, shall be deemed guilty of perjury. The fees for attendance and travel of witnesses shall be the same as for witnesses before the superior court, and shall be paid by the state treasurer, on the day of attendance, upon the certificate of said secretary, which shall be filed with the comptroller. The superior court shall have jurisdiction in equity, upon the application of said secretary, to enforce all lawful orders of the secretary under this section.

Non-residents.

Sec. 10. Any non-residents of this state who has complied with the laws of the state within which he resides, relating to motor vehicles and the operation thereof, may use the highways of this state without complying with the provisions of this act relating to the registration of motor vehicles and the licensing of operators; provided, that such non-resident shall cause to be displayed on his motor vehicle, upon two plates substantially as required by section four of this act, the distinguishing number or mark of the state within which he resides; and provided further, that if any non-resident be convicted of violating any provision of section eleven, twelve, or eighteen hereof, he shall thereafter, for the remainder of the calendar year, be subject to and required to comply with all of the provisions of this act.

Prohibited Acts.

Sec. 11. No person shall operate a motor vehicle on the public highways of this state recklessly or at a rate of speed greater than is reasonable and proper, having regard to the width, traffic, and use of the highway, or so as to endanger the property or the life or limb of any person.

Sec. 12. Upon approaching any person walking in the traveled portion of any highway, or a horse or any other draft animal being led, ridden, or driven therein, and in passing such person or such horse or other draft animal, the person operating a motor vehicle shall have the same under control, and shall reduce its speed when reasonable care requires. If such horse or other draft animal being so led, ridden, or driven, shall appear to be frightened, and if the person in charge thereof shall signal so to do, the person operating such motor vehicle shall bring the same immediately to a stop, and, if traveling in the opposite direction, shall remain stationary so long as may be reasonable to allow such horse or other draft animal to pass, or if traveling in the same direction, shall use reasonable caution in thereafter passing such horse or other animal. Upon approaching an intersecting highway, or a curve or a corner of a highway, every person operating a motor vehicle shall slow down and give a timely signal with his bell or horn when reasonable care requires, and shall keep to the right of the intersection of the center of both highways when turning to the right, and pass to the right of the intersection of the centers of said highways before turning to the left.

Sec. 13. If the rate of speed of a motor vehicle operated on a public highway of this state exceeds twenty-five miles an hour for a distance of one-eighth of a mile, such rate of speed shall be prima facie evidence that the person operating such motor vehicle is operating the same at a rate of speed greater than is reasonable and proper, and in violation of the provisions of section eleven of this act. If, except within the limits of an incorporated city, the rate of speed of a motor vehicle operated on the public highways of this state, where the operators' view of the road and traffic is obstructed, when approaching a crossing or intersecting public highway, or when traversing a bridge or a sharp turn, or a steep descent, or a curve in the highway, exceeds ten miles an hour, such rate of speed shall be prima facie evidence that the person operating such motor vehicle is operating the same at a rate of speed greater than is reasonable and proper, and in violation of the provisions of section eleven of this act. If the rate of speed of a motor vehicle operated upon the public highways of this state in passing any street railway car that is stationary or about to stop, on the same side of the car on which passengers are ordinarily received and discharged, exceeds three miles an hour, such rate of speed shall be prima facie evidence that the person operating such motor vehicle is operating the same at a rate of speed greater than is reasonable and proper, and in violation of the provisions of section eleven of this act.

Sec. 14. No person shall operate or use any motor vehicle upon the highways of this state without the permission of the owner.

Sec. 15. No person shall interfere or tamper with a motor vehicle without the permission of the owner.

Local Ordinances.

Sec. 16. No city, town, or borough shall have power to make any ordinance, by-law, or resolution respecting the speed of motor vehicles, and no ordinance, by-law, or resolution made by any city, town, or borough in respect to the rate of speed of motor vehicles shall have any force or effect; provided, that power given to any town, city, or borough to regulate shows, processions, assemblages, or parades in streets and public places, and to regulate the use of public parks, and all ordinances, by-laws, or regulations which have been or which may be enacted in pursuance of such powers shall remain in full force and effect.

Penalties.

Sec. 17. Any person operating a motor vehicle upon the public highways of this state who fails to comply with or violates any of the provisions of section two, three, four, five, seven, eight, eleven, twelve, fifteen, or twenty-five of this act shall be fined not more than one hundred dollars, or imprisoned not more than ten days, or both, for a first offense, and shall be fined not more than five hundred dollars, or imprisoned not more than six months; or both, for any subsequent offense. Any person operating a motor vehicle upon the highways of this state while under the influence of intoxicating liquor or drugs, or upon a wager, or in a race, or who operates a motor vehicle for the purpose of making a record and thereby violates section eleven of this act, or who knowingly goes away without stopping and making himself known after causing injury to any person or property, or who shall, in his application to the secretary for a license or certificate for a motor vehicle or for a license as a motor vehicle operator, make any material false statement, shall be fined not more than two hundred dollars, or imprisoned not more than six months, or both, for a first offense, and shall be fined not more than five hundred dollars, or imprisoned not more than one year, or both, for any subsequent offense, except that the penalty upon any subsequent conviction of operating a car while intoxicated or under the influence of drugs shall be as hereinafter provided. Any person convicted of any violation of section fourteen of this act, or convicted a subsequent time of operating a motor vehicle while under the influence of intoxicating liquor or drugs, shall be imprisoned not less than six months and not more than two years.

Sec. 18. Any person who, while operating or in charge of a motor vehicle, shall refuse, when requested by an officer, to give his name and address or the name and address of the owner of such motor vehicle, or who shall give a false name or address, or who shall refuse or neglect to stop when signaled to stop by an officer, or who refuses, on demand of such officer, to produce his license to operate such vehicle or his certificate of registration, or to permit such officer to take the license or certificate in hand for the purpose of examination, or who refuses, on demand of such officer, to sign his name in the presence of such officer, and any person who, on the demand of an officer acting under instructions from the secretary, refuses, without a reasonable excuse, to surrender his license to operate motor vehicles, or his certificate of registration of any motor vehicle operated or owned by him, or the number plates furnished by the secretary for such motor vehicle, or who refuses or neglects to produce his license when requested by a court or trial justice, shall be fined not more than one hundred dollars, or imprisoned not more than ten days, or both. Any person violating any of the provisions of this act for which no specific penalty is provided shall be fined not more than one hundred dollars, or imprisoned not more than thirty days, or both.

Sec. 19. No recovery shall be had in the courts of this state, by the owner or operator, or any passenger of a motor vehicle which has not been legally registered in accordance with section two or three of this act, for any injury to person or property received by reason of the operation of said motor vehicle in or upon the public highways of this state, unless said motor vehicle is the property of a non-resident and is within the provisions of section ten of this act; nor shall such recovery be had if the motor vehicle be registered but is being operated by an unlicensed person in violation of section five of this act.

Jurisdiction of Justice Courts.

Sec. 20. In all complaints for the violation of any provision of this act the justice of the peace before whom the same may be tried shall have jurisdiction and power to render judgment and issue process of execution and mittimus thereon where such fine or penalty imposed shall not exceed two hundred dollars, or imprisonment thereon where such fine or penalty imposed shall have the right of appeal as in other cases. The justice of the peace or court before whom a final conviction shall be had under the provisions of this act shall endorse upon the license of the person convicted the dates and particulars of such conviction.

Bail and Recognizances.

Sec. 21. Any person arrested for violating any of the provisions of this act may tender as bail a motor vehicle of which he is owner, and if such vehicle is of sufficient value it shall be accepted as security for his appearance, in lieu of any other bail. Any person licensed under this act who is arrested by an officer for violation of any of its provisions, except those relating to driving while intoxicated or under the influence of drugs, or to using a motor vehicle without the permission of the owner, shall, unless such violation involves the death or serious injury of any other person, upon showing the proper certificate for the motor vehicle which he was driving at the time of said violation and his own license as an operator, be allowed to go, by said officer, on his own recognizance; provided, that if any person so arrested shall fail to appear for trial at the proper time and place, when summoned by a notice sent by registered mail, at least five days before the day of said trial, to the address disclosed in his said operator's license, his said certificate or license, and all others which he may hold, shall be immediately revoked by said secretary, and no new license or certificate shall be issued to him within three months from the date of such revocation, nor shall any certificate be granted to any other person, within thirty days after such revocation, for any of the motor vehicles the certificates of which shall be thus revoked. The provisions of this section shall be extended to all non-resident operators of motor vehi-

cles residing in a state the proper authorities of which shall agree with said secretary to revoke, for a period of at least sixty days, the certificates and licenses of any owner or operator of a motor vehicle who shall fail to appear for trial when summoned as hereinbefore provided.

Records and Reports.

Sec. 22. A full record shall be kept by every court or justice of the peace of all cases in which any person is convicted of any offense involving a violation of any of the provisions of this act, or in which any person arrested for such a violation shall forfeit his bail, or have his case nolle by payment of other than costs, and a certified abstract of such record, the expense of which shall be taxed at two dollars in the costs of the case, payable to the clerk of the court or the justice of the peace reporting such conviction, together with a statement of the number of the operator's license to the person so convicted or so forfeiting his bail shall, within two days after the date of such conviction or forfeiture, be transmitted to the secretary by said clerk of the court or justice of the peace. Such courts and justices of the peace shall furnish to said secretary the details of all cases heard before them, and shall make such recommendation to said secretary as to the suspension or revocation of the licenses of the parties defendant as they deem proper.

Miscellaneous Provisions.

Sec. 23. Appeals from the decision of the secretary made under the provisions of this act may be taken to the superior court within the county wherein the appellant resides, and appeals by any person residing outside of this state shall be taken to the superior court within Hartford county. The provisions of section 2658 of the general statutes concerning appeals from a decision of the county commissioners shall, so far as the same are applicable, govern the appeals from said secretary herein provided for.

Sec. 24. The secretary, the selectmen of any town, or the prosecuting officer of any city or borough court shall have the right to call upon the state police department for aid in enforcing the provisions of this act.

Sec. 25. Every person who conducts a public garage shall keep a book upon which shall be registered the name of the maker and the register number of every transient motor vehicle left or stored in such garage, together with the name of the operator of such motor vehicle and the number of such operator's license, unless said operator declares himself to be the owner of such motor vehicle, in which case no registration shall be required; and the operator of said motor vehicle so temporarily left or stored shall, unless he declares himself to be the owner thereof, enter on said book the time when said motor vehicle enters such garage and the time when he takes the same therefrom, and shall sign his name to such entry.

Sec. 26. All fines collected for violation of any of the provisions of this act and all forfeitures and fees other than taxable costs shall be paid over to the secretary by the clerk of the court or by the justice of the peace imposing the same, and all fees imposed by this act and collected by said secretary, together with all fines received by him as aforesaid, shall be by him paid monthly into the treasury of the state, and said money shall be expended under the direction of the highway commissioner for the maintenance of state highways, without specific appropriation by the general assembly, in addition to all sums already appropriated or that may hereafter be appropriated by the general assembly for the same purpose; and in the expenditure upon the highways of the moneys so received, the provisions of section three of chapter 264 of the public acts of 1909 with regard to reimbursement by the towns shall not be applicable.

Sec. 27. Chapters 211 and 264 of the public acts of 1909 and all acts or parts of acts inconsistent herewith are hereby repealed.

Sec. 28. This act shall take effect August 1, 1911, except that sections two, three, and eight and so much of section twenty-seven as repeals sections two, three, and eight of chapter 211 of the public acts of 1909 shall take effect January 1, 1912.



986,832. Safety Fender for Automobiles. Ignacy Ksiazek, Chicago, Ill. Filed July 11, 1910. Serial No. 571,371.

1. In a device of the class described, a guard hinged above the pavement, a buffer rod projecting in advance of the vehicle frame at a distance above the pavement, a fender rod hung to the vehicle frame below the buffer rod and adapted to swing back over the guard, and means adapted to disengage said sustaining means when the fender rod is swung back, substantially as described.

986,880. Attachment for Opening and Closing Automobile Doors. Solyman J. Way, Manchester, Vt. Filed March 31, 1910. Serial No. 552,612.

1. In a door manipulating apparatus, the combination with a door and its frame; of leaf hinges connecting the said door and frame, a common pintle for said hinges fixedly secured to the leaves carried by the door, a latch arranged in the door frame to engage with the door and maintain the latter in closed position, an operating lever, a rocker arm, means connecting the rocker arm with the latch and a connection between the operating lever and the pintle operating to turn the latter, and means associated with the said connection operating to actuate the rocker arm to move the latch from engagement with the door in advance of the turning movement of the pintle.

986,904. Shock Absorber. Charles M. Burton, New York, N. Y. Filed June 9, 1910. Serial No. 565,931.

A device of the class described, comprising a cylinder having interiorly formed threads at each terminal thereof, nuts adapted to operate on said threads, springs carried by said nuts the inner terminals of said springs being spaced and the upper of said nuts having an opening therein, a piston rod adapted to reciprocate in said opening and through the upper of said springs, a piston detachably carried at the lower terminal of said rod having a rubber collar on each side thereof, an arm carried at the lower terminal of said cylinder having a transverse channeled plate at its outer terminal, a clamping plate co-operating therewith, an eye formed at the upper end of said piston rod, and an arm co-operating therewith.

986,921. Shock Absorber. James Madison Jackson, Parkersburg, W. Va. Filed Dec. 29, 1909, Serial No. 535,411. Renewed Nov. 8, 1910. Serial No. 591,326.

1. A shock absorber for motor vehicles, consisting of a bracket or hanger secured to the frame of the vehicle, a coiled spring

secured to the axle of the same, a rod extending upwardly from the upper end of the spring through the aforesaid hanger or bracket, and means for both regulating and limiting the vertical play of the rod through the hanger or bracket, said means located on the rod both above and below the bracket.

986,947. Friction Clutch Mechanism. Gustave A. Schacht, Cincinnati, Ohio. Filed Nov. 8, 1909. Serial No. 526,829.

1. In a friction clutch mechanism, a shaft, a fly-wheel or gland fastened thereto and having a flat broadside engaging surface, a friction disk loosely mounted and normally free to slide on said shaft and having a flat broad-side engaging surface adapted to engage said broad-side engaging surface on the fly-wheel, a beveled or tapering engaging surface on the friction disk, a tapering or wedge-shaped member adapted to revolve with the fly-wheel and means for adjusting the wedge-shaped member to and from engagement with said friction disk.

986,966. Pivot Light. Peter B. Donahoe, Oakland, Cal., assignor to Alfred H. Lent, Oakland, Cal. Filed July 10, 1909. Serial No. 506,990.

A lamp supporting device comprising a flattened spring with a lamp bracket secured thereto and having an enlarged projecting end, a pivot shaft carried by said end, said pivot shaft projecting through said bracket and having on its lower end a crank arm provided with a pivot pin on its outer end, said pin having a bifurcated link secured thereto, a rod having one end connected to said bifurcated link, and a knuckle joint having an upstanding pin provided with a link having a bifurcated end having the other end of said rod mounted therein.

987,139. Bracket for Supporting Lamps and Other Articles. George William Houck, London, England. Filed July 15, 1907. Serial No. 383,930.

1. An adjustable lamp bracket comprising a pair of prongs, each having a stem, clamping plates through which said stems pass, and means for slamping the stems to the plates so that the prongs are simultaneously fixed at the required distance apart and the plates fixed in position on the part to which the bracket is fixed.

987,164. Valve Mechanism for Internal-Combustion Engines. Alden E. Osborn, New York, N. Y. Filed July 3, 1909. Serial No. 505,860.

1. A valve mechanism comprising a casing having inlet and exhaust chambers and a distributing passage, a valve located at one end of the said passage for controlling the same, and means located at the other end of the said passage, and operated by the movement of the said valve, for connecting the said passage with either the said inlet of the said exhaust chamber.

987,216. Metal Rim for Vehicle-Tires. John Clarence Cole, Chicopee Falls, Mass.,

assignor to The Fisk Rubber Company, Chicopee Falls, Mass., a Corporation of Delaware. Filed Nov. 18, 1910. Serial No. 592,996.

1. A demountable rim for vehicle tires of the type specified comprising two annular parts each having a rolled up edge to engage the bead on the base of the tire, each of said annular rim parts having projections thereon extending toward the opposite part, a projection on one of said parts fitting between two of the projections on the opposite part, separate, independently operable, locking devices permanently mounted on certain of said projections and movable circumferentially of the rim into locking engagement with a contiguous projection on the other rim part, whereby the two rim parts may be locked together.

987,322. Automobile Lamp-Bracket. Ross H. Rohrer, Quarryville, Pa. Filed Aug. 5, 1909. Serial No. 511,373.

1. The combination with a steering wheel of a motor vehicle having a stub-axle, and a fixed axle, the end of which is forked and provided with journal bearings between which said stub-axle fits, of a rotary movable spindle passing through said journal bearings and stub-axle, an arm extending outward from said spindle, a U-shaped yoke carried upon the end of the arm, a lamp rotatably supported in said yoke, and means for adjusting the lamp in any desired rotated position.

987,358. Motor-Vehicle. Emil Gruenfeldt, Cleveland, Ohio, assignor to The Baker Motor Vehicle Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 28, 1919. Serial No. 535,230.

1. In an electric motor vehicle having a frame and a driving axle mechanism including live axle sections and a differential mechanism with a driving gear having its axis in a vertical plane disposed longitudinally of the said frame, an electric motor suspended from said frame and having its armature shaft longitudinally disposed relative to the frame and at one side of the longitudinal plane of said axis of the differential mechanism driving gear, driving shafting connected at its rear end to said differential drive gear and extending forward therefrom and along one side of said electric motor, a bearing for said shafting arranged near its front end, and reduction gearing between the front end of said driving shafting.

987,430. Speed-Changing Mechanism. William C. Conant, Oak Park, Ill. Filed Mar. 7, 1910. Serial No. 547,687.

1. In speed-changing mechanism, the combination of revoluble gear-members movable with relation to each other and operated from a common source against the resistance of a load and operatively connected together to cause one of said gear-members to react upon the other, a fulcrum and means operatively connecting one of said gear-members with said fulcrum to exert against the latter the combined reaction of the gears.

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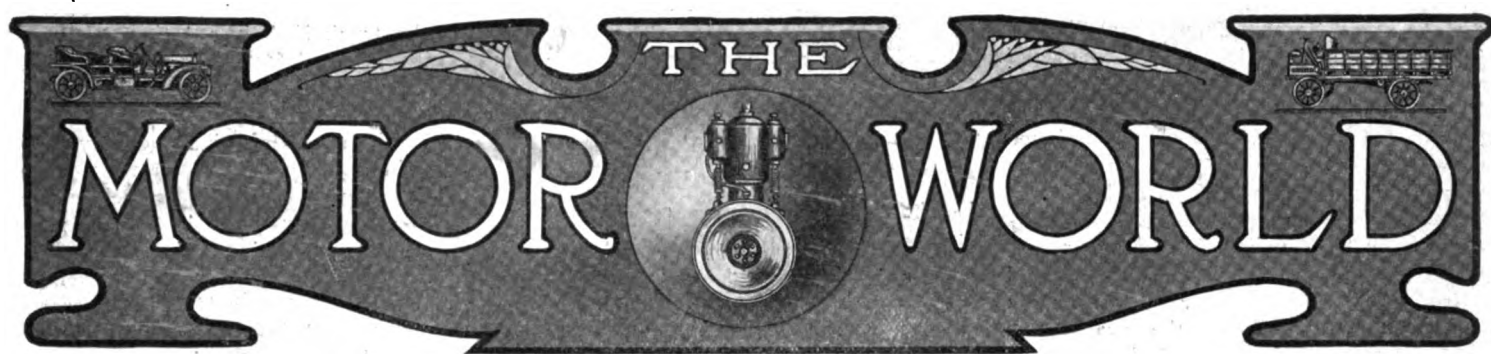
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Vol. XXVIII.

New York, U. S. A., Thursday, July 13, 1911.

No. 3.

BOARD OF TRADE BEGINS BUSINESS

Decides to Date Commencement of Operations from July 1—Aggressive Patent Campaign is in Prospect.

Although the Automobile Board of Trade has been in legal existence for some three months, it really did not "get down to business" until Thursday last, 6th inst., when the first meeting of the general membership was held in New York. It then took over the offices of the A. L. A. M. and decided that its affairs, including the members' reports of their respective production of cars, shall bear date as of July 1st. On these reports of outputs, which will be rendered quarterly, the amount of annual dues will be based, on a ratio of one-tenth of one per cent.

The subjects of shows and patents were discussed, but as the lease of Madison Square Garden still stands in the name of the Association of Licensed Automobile Manufacturers, which has not been wound up, the matter of shows was touched only in a more or less informal manner. The matter of patents, however, received more attention, and while no official statement to that effect has been issued, it is known that a decision has been reached to pursue an aggressive campaign in that direction. There is no Selden patent in hand, but there are a number of far-reaching patents owned by members of the Board of Trade which have been permitted to lie dormant, but which it is the intention to take up and actively exploit, with a view of bringing infringers to book.

At Thursday's meeting, Thomas Henderson, the Winton representative, who is retiring from business, tendered his resignation as a director of the Board of Trade; it was accepted with regret and W. C. Leland, of the Cadillac Motor Car Co., elected to fill the vacancy.

The members present at the meeting were as follows: John S. Clark and M. L.

Downs, Autocar Co.; C. W. Nash, Buick Motor Co.; W. C. Leland, Cadillac Motor Car Co.; Hugh Chalmers, Chalmers Motor Co.; M. S. Hart, Corbin Motor Vehicle Corp.; R. Scott Smith, Elmore Mfg. Co.; G. H. Stillwell, H. H. Franklin Mfg. Co.; G. A. Matthews, Jackson Automobile Co.; A. N. Mayo, Knox Automobile Co.; S. T. Davis, Jr., and J. T. Roach, Locomobile Co. of America; W. C. Shepherd and F. F. Matheson, Matheson Auto. Co.; Benjamin Briscoe and Alfred Reeves, U. S. Motor Co.; Wm. E. Metzger, Metzger Motor Car Co.; J. W. Gilson, Mitchell-Lewis Motor Co.; E. J. Moon, Moon Motor Car Co.; C. C. Hanch, Nordyke & Marmon Co.; Geo. E. Daniels, Oakland Motor Car Co.; S. D. Waldon, Packard Motor Car Co.; L. H. Kittredge, Peerless Motor Car Co.; Charles Clifton, Pierce-Arrow Motor Car Co.; George Pope, Pope Mfg. Co.; H. O. Smith, Premier Motor Mfg. Co.; R. H. Salmons, Selden Motor Vehicle Co.; G. S. DeLaney, Stevens-Duryea Co.; E. P. Chalfant, E. R. Thomas Motor Co.; Geo. W. Bennett, Willys-Overland Co.; C. W. Churchill, Winton Motor Carriage Co., and Acting Manager H. A. Bonnell.

To Make Tires in South Bend.

W. A. Bentley, of Akron, and M. G. O'Brien, of Mansfield, O., who are the moving spirits in the recently organized South Bend Tire & Rubber Co., have obtained an option on an 18-acre site in South Bend, Ind., on which they purpose erecting a four-story plant. They expect to have it in operation by the end of the year and to be employing 600 men within twelve months.

G. W. Perkins to Joint U. S. Motor.

According to reports in financial circles, George W. Perkins, formerly of J. P. Morgan & Co., will become a member of the finance committee, of the United States Motor Co., at the regular meeting of the directors on July 27. The committee then will be composed of Eugene Meyer, who recently became chairman, Richard Irvin and Perkins.

N. A. A. M. SECURES THE PALACE

And Having Secured It, Sets Date for Its New York Show—New Members Elected—More Exhibitors Reinstated.

Having effected the necessary lease of the new Grand Central Palace, the National Association of Automobile Manufacturers, at its regular meeting on Thursday last, 6th inst., made definite its decision to conduct an open show in New York during January next, the probability of which was announced some weeks since.

If nothing occurs meanwhile to permit the dates to be advanced, the show will open Wednesday, January 10 and close one week later, Wednesday, January 17. As the Board of Trade show in Madison Square Garden will be inaugurated Saturday, January 6, and will close two weeks later, the N. A. A. M. function thus will be in progress during a portion of both of those weeks. The N. A. A. M. show will include both pleasure cars and commercial vehicles, which, however, will be staged in separate departments; and according to the official announcements, "it is practically settled that the Motor and Accessory Manufacturers will take the greater part of the space devoted to that branch of the industry which the organization represents."

The price of space, including decorations, equipment and charges of every character, will be \$1.25 per square foot. Of the net proceeds of the show, if any, the association will retain one-half. The remainder will be rebated to exhibitors in proportion to the amount of their space rental. The method of allotment will be the same as that at the Chicago show. The executive committee referred all other details to the show committee and the general manager with full authority to proceed.

At Thursday's meeting, the Krit Motor Car Co. and Grabowsky Power Wagon Co. were elected to membership, and favorable action was taken on applications for rein-

statement of Vandewater & Co., Ltd., Crawford Automobile Co., Warren Motor Car Co., and James Cunningham Son & Co., who took part in the "independent" and unsanctioned show in Grand Central Palace last winter and were therefore debarred from participation in sanctioned shows. This reinstatement will permit them to exhibit at next year's N. A. A. M. shows, both in New York and Chicago.

C. G. Stoddard resigned as the representative of the Dayton Motor Car Co., and Alfred Reeves was elected as representative of that company and to fill the vacancy created on the N. A. A. M. executive committee.

The membership of Charles E. Duryea was transferred to the Duryea-Auto Co., of Saginaw, Mich., and Harry S. Haupt was elected to represent the American Locomotive Co., in place of James Joyce, retired.

The members present at the meeting were W. E. Metzger, Charles Clifton, Alfred Reeves, L. H. Kittredge, S. T. Davis, Jr., H. O. Smith, A. L. Pope, Thomas Henderson, J. W. Gilson, Benjamin Briscoe, S. A. Miles.

Strauss Can't Employ Name Klaxon.

Matthew Strauss, of Buffalo, will no longer advertise or sell Newtowne horns as "Newtone Klaxon Pattern Horns." When he began doing that sort of thing, the Lovell-McConnell Mfg. Co., makers of the Klaxon, lost no time in instituting suit for infringement of their trademark and for a preliminary injunction, and when the case came to trial before Judge Hazel in the United States Circuit Court in Buffalo, on June 27, and after full argument had been heard, Strauss decided that discretion was the better part of valor and consented to the issuance of a permanent injunction against him and also agreed to pay the costs. The suit was settled on those terms. Previously, in November, 1910, in the same court, Strauss had been adjudged guilty of infringing the basic patents on the Klaxon horns and had been enjoined, but apparently he overlooked the fact that the name Klaxon constituted a registered trademark and cannot be trifled with.

M. A. M. Fill Two Vacant Offices.

At the meeting of the Motor and Accessory Manufacturers in New York, on Friday last, 7th inst., H. W. Chapin, of the Brown-Lipe-Chapin Co., was elected treasurer of the organization to succeed the late W. S. Gorton. Mr. Chapin had been filling the office as treasurer pro tem. since the death of Mr. Gorton. James H. Foster, of the Hydraulic Pressed Steel Co., was chosen to fill the vacancy on the board of directors. Four new members were elected, viz.: Allen Auto Specialty Co., of New York; Detroit Carriage Co., of Detroit; Champion Ignition Co., of Flint, Mich., and the American Circular Loom Co., of Boston, Mass., which recently acquired the ignition business of the Lutz-Lockwood Mfg. Co.

HERE'S A GUARANTEE FOR TRUCKS

Formulated by New York Tradesmen to Assist Final Solution—Covers a Period of Six Months.

After about two months of deliberation the Motor Truck Club, of New York City, has framed a model guarantee for commercial vehicle application, which is tentatively advanced, with the object of obtaining possible criticism pending its final adoption by the members of the club, who are agents and dealers in the Metropolitan district. The agreement provides for the shipment to the purchaser prepaid of parts that have proved defective in workmanship or material, within six months of the date of original shipment. Tire replacements, "wear and tear" and "accidents" are excluded, and a special "snapper" clause is added which provides for the termination of the contract upon the truck being "overloaded, misused or neglected," or upon its being equipped with a body not approved by the manufacturer.

In presenting its suggestion the committee, which consists of John Hanson Kennard, chairman, Couple-Gear Co.; E. Lascaris, DeDion Bouton; A. N. Bingham, Hewitt Motor Truck Co.; and Charles E. Stone, Alden Sampson Mfg. Co., makes the rather striking assertion that contrary to the ordinary supposition, the guarantee is a means of protecting the manufacturer against the purchaser. Instead of the purchaser requiring protection against the maker, it is held that the manufacturer needs to be guarded against the impositions of the unscrupulous user.

"It is generally supposed that a guarantee is the protection which the purchaser has against the manufacturer," says the report, "but the committee is of the opinion that, as a matter of fact, it is the protection of the manufacturer against the purchaser. A responsible manufacturer will always protect the purchaser in every reasonable manner, irrespective of guarantee, as good faith and good business require it, but the unreasonable and unfair purchaser is the one who always seeks to hold the manufacturer to the letter of his contract, and against such persons the manufacturer must look to his written agreement for his protection. The guarantee given with a truck does not mean that the manufacturer is going to limit himself to what is there expressed, but it means that if he is not fairly dealt with he cannot be called upon for more than that guarantee agrees to do."

Action on the adoption of the standard form has been deferred until the next monthly meeting of the club, pending which Charles E. Stone, the secretary, has been authorized to furnish copies to manufacturers for their study and criticism. The proposed form, which it is said one manu-

facturer has adopted already, is as follows:

"We guarantee to replace, free of charge, in the truck if delivered to us, any parts which prove defective in workmanship or material within six months from date of shipment. If the truck is not sent to us we will ship such defective parts by freight, prepaid.

"All parts on which replacements are claimed must promptly be sent to us, carriage prepaid, for inspection.

"This guarantee does not cover tires, wear and tear, or accidents; and ceases upon the truck being overloaded, misused or neglected, or upon a body, not approved by us, being placed on the chassis."

Aeroplanes at First Palace Show.

Aeroplanes will constitute a feature of the show in Grand Central Palace, New York, which will occur during the week of January 1st, under the auspices of the Automobile Manufacturers Association of America, which grew out of the privately-promoted show held there last winter in which air craft also played a part. On the forthcoming occasion, however, the latter display will be fathered by the Aeronautical Manufacturers Association, which has entered into an arrangement with the automobile manufacturers' organization whereby it will have the use of the entire third floor of the Palace. The fact that such an arrangement had been consummated was made public after a meeting of the executive committee of the A. M. A. A. in New York on Friday last. It was also announced that L. J. Bergdoll, of the Bergdoll Motor Co., of Philadelphia, had been appointed chairman of the show committee.

Will be Willys-Garford Sales Co.

The news that the Willys-Overland interests and the Garford interests had formed a selling arrangement whereby Garford cars and trucks would be marketed through Overland agents, which was published exclusively in last week's Motor World, proved one of the genuine surprises the trade has received in some time. The original intention to style the new selling company the Willys-Garford Corporation has been changed, however, and the enterprise will be styled the Willys-Garford Sales Co., with headquarters in Toledo and with John N. Willys as president. The stock in the sales company will be held wholly by Willys and his associates, of whom George W. Bennett will be vice president and general manager and Walter Stewart, secretary and treasurer, as was stated last week.

Another Truck Company in Detroit.

The Banta Motor Truck Co., capitalized at \$100,000, has been organized in Detroit, where it expects to begin operations within 60 days. The principal stockholders are Jacob H. Stoerkel, George H. Banta, Hiram P. Stalker and Daniel P. Cassidy. The company purposes producing a light delivery wagon, listing at \$700.

HENDERSON CUTS BUSINESS TIES

**Trade Veteran's Retirement Made Notable
—Surprised and Honored by Associates
Amid Scotch Surroundings.**

Thomas Henderson, vice-president of the Winton Motor Carriage Co., who has for many years been prominently identified with the work of the automobile trade associations, has decided to retire, not only from the Winton company but all other business activities. He already has resigned as a director of the Automobile Board of Trade, and on the first Wednesday of September will retire from the executive committee of the National Association of Automobile Manufacturers, Inc., of which he has been a member for ten years.

As an appreciation, on Thursday evening, July 6th, twenty-five men in the trade, with whom Mr. Henderson has been prominently associated, gave a dinner in his honor at the Engineers' Club in New York and presented him a loving cup and an address engrossed on vellum and beautifully bound. The gentlemen present, in addition to Mr. Henderson, were S. T. Davis, Jr., William R. Ihnis, W. T. White, A. L. Pope, Alfred Reeves, Charles Clifton, W. E. Metzger, S. D. Waldon, George Pope, R. D. Chapin, H. O. Smith, E. E. Bartlett, H. B. Joy, L. H. Kittredge, C. C. Hildebrand, Hugh Chalmers, J. W. Gilson, C. C. Hanch, S. A. Miles, Benjamin Briscoe, M. J. Budlong, R. D. Garden, Wm. Mitchell Lewis, W. C. Leland, Frank Briscoe.

The decorations, in recognition of Mr. Henderson's nationality, were largely of Scotch plaids, thistle and heather. Mr. Henderson, who, until the last moment, had no inkling of the event, was met on his arrival at the club by a Scotch piper in full regalia. The music of the evening also consisted largely of Scotch airs.

The address was presented by W. E. Metzger, president of the National Association of Automobile Manufacturers, Inc., and the cup by Charles Clifton, president of the Association of Licensed Automobile Manufacturers. Both gentlemen spoke earnestly and feelingly of the esteem in which Mr. Henderson is held by every one with whom he is acquainted, as did Colonel George Pope and others who followed. Mr. Henderson's response was a feeling one, which deeply touched all those who heard it.

Among other things, the engrossed address presented to Mr. Henderson, said:

"We have learned, by years of acquaintance, more or less intimate, to appreciate you at your true value. We know that sterling qualities were in your constitution from the beginning—industry, capability, integrity and, not the least of them, determination, for any good quality needs backbone to make it effective. We know that

circumstance molded your character, and your character mastered circumstance. . .

. . . The size of a gathering is not the most important thing concerning it. The spirit and purpose of the gathering are all important. You will accept our assurance that the signatures hereto attached—those of the friends who surround you—and the sentiments herein expressed, represent the spirit, purpose and good will of the entire world of automobiling. You will permit us to hope that in your days to come—days 'blest with health, and peace and sweet content'—you will still be frequently found among those who consider it an honor to subscribe themselves, your loyal friends."

Changes Among Prominent Tradesmen.

W. K. Hadley has been appointed sales manager for Chas. E. Riess & Co., of New York, general eastern distributors of Marion cars. Previously he was eastern sales manager for the Marion Sales Co., of Indianapolis, Ind.

L. W. Place, who has served the Olds Motor Works in several capacities, has been appointed assistant to the general manager, W. J. Mead, and has been designated to oversee the business in New England, with headquarters in Boston.

George Braithwaite, for several years factory manager for the Stevens-Duryea Co., has been appointed master mechanic of the Thomas B. Jeffery Co., of Kenosha, Wis. He will devote himself particularly to the work of parts machining, on the accuracy of which the Rambler makers plume themselves.

W. McK. White, advertising manager of the Premier Motor Mfg. Co., of Indianapolis, has resigned that office to take a place in the advertising department of the United States Motor Co., in New York. Before going to the Premier company, White had been in the newspaper business and had worked with Alfred Reeves, now sales manager of the United States Motor Co., in the conduct of the Grand Central Palace show in New York.

Rebates that Reciprocity Will Bring.

Secretary Knox has submitted to the Senate finance committee an analysis of the Canadian imports that are in any way affected by the pending reciprocity agreement, during the last fiscal year, which, for Canada, ends March 31, 1911, and from that it appears that the duty has been mutually lowered on automobiles, of which, during the past year, 3,186 were imported into Canada from the United States at a total value of \$3,829,435, and on which the total amount of duties collected amounted to \$1,340,302.25, of which, under the pending arrangement, \$191,471.75 would be remitted. In addition, there were importations of automobile parts to a total value of \$494,264, on which the duty amounted to \$172,992.40, of which, under the pending arrangement, \$24,713.20 would be remitted.

ORDERS RATE REDUCED ON PARTS

**Interstate Commerce Commission's Decision
Affects Shipments to California—
Defines Reasonable Rate.**

Late last week the Interstate Commerce Commission handed down a decision ordering the Chicago, Milwaukee & St. Paul Railway Co. to reduce its rate on carload shipments of automobile parts from \$3 per 100 pounds to \$1.90 between Milwaukee and Los Angeles, the language of the decision being such that although only these points are immediately affected, it justifies the belief that a general reduction in the rate on such shipments is easily possible if the effort to obtain it is made.

The Commission's decision grew out of the complaint filed with it by the Auto Vehicle Co., of Los Angeles, Cal., against the C., M. & St. P. R. R., in which it was alleged that unreasonable charges were exacted for the transportation from Milwaukee to Los Angeles of two carloads of metal machinery to be used in the construction of automobiles, on which a rate of \$3 per 100 pounds was charged, whereas the complaint claimed that \$1.60 would have been a reasonable rate.

These shipments consisted of rear axles, front axles, clutches, sockets, brake rods and connections, buffers, forks, bushings, rear hubs, front hubs, bolts and nuts, radiators, hoods, frames, cone clutches, propeller shafts, foot pedals, fore and aft connections, steering gear and fenders. The invoice price for the first shipment was \$7,987 and for the second \$10,567.50. The parts were assembled into finished automobiles at the Los Angeles plant, where it performed the final process of manufacture.

The rate of \$3 was a less-than-carload rate assessed under item in Western Classification No. 44, I. C. C. No. 2, which reads as follows:

"Automobile parts: Metal parts, consisting of fly wheels, sprockets, crank shafts, cylinder heads, chains, brakes, drums and shoes, springs, cylinders, connecting rods, axles, and boilers, boxed or crated, first class. Metal parts, n. o. s., boxed or crated, first class."

No carload rate is provided for automobile parts by the Western Classification, and the first class less-than-carload rate was applicable under Rule 7 of the classification, which provides that "when rate for which is given will govern regardless of carload is not named the classification quantity."

Two arguments were put forward by the complaint; first, that the rate lawfully applicable was \$1.60, because the classification provided Class A rating upon machinery n. o. s. in carloads, minimum weight 24,000 pounds; second, that the rate

assessed was unreasonable in comparison with rates prevailing on other classes of machinery.

The Commission holds that as to the first contention complainant is in error. Even assuming that the consignment could have been reasonably described as machinery for transportation purposes, the fact that it is specifically described in another part of the classification renders improper the application of a rate limited to machinery, not otherwise specified.

On the other hand, it holds that the second contention is well founded. The transcontinental tariff in effect when the shipment moved provided a rate of \$3 on automobiles and parts, with a minimum carload weight of 12,000 pounds. Evidence was given to show that application had been made and denied for carload rating on automobile parts, on the ground that they had always considered that the parts of an automobile were not properly a carload commodity; that if the rate were to be reduced on a part it would simply reduce the rate on the completed article, because they could knock them down and ship the separate parts at a lower rate.

The commission holds that the complainant has a right to demand transportation at a reasonable rate and that requirement cannot be denied because of the carrier's preference to the form in which the traffic shall be moved.

Taking into consideration the carload rates voluntarily established by the carriers on machinery and parts thereof, the Commission states that it sees no reason why they should not have established a carload rating upon automobile parts, and they are of the opinion that the tariffs are unreasonable on account of their failure to do so. It assumes from the invoice prices shown in the record that the automobile parts are more valuable per carload than many of the articles to which the class A rating is applied; but making allowance for the difference in value the Commission is still of the opinion that the fourth class rate of \$1.90 per 100 pounds on a minimum weight of 24,000 pounds would have afforded the carriers a reasonable compensation for the service which they performed.

Therefore the Commission finds that the rate exacted for the shipments in question was unreasonable to the extent that it exceeded a rate of \$1.90 per 100 pounds, and has awarded reparation with interest at six per cent., in the first instance from June 11, 1908, and in the other from December 18, 1908. The carriers are also ordered to establish on or before September 1, 1911, and to maintain in force for a period of two years thereafter, a rate from Milwaukee to Los Angeles on automobile parts, not in excess of the contemporaneous fourth class rate at a minimum carload weight which shall not be in excess of 24,000 pounds.



Detroit, Mich.—United States Motor Castings Co., under Michigan laws, with \$6,000 capital.

Detroit, Mich.—Foster Motor Sales Co., under Michigan laws, with \$20,000 capital; to deal in automobiles and other motor vehicles.

Detroit, Mich.—General Motors Export Co., under Michigan laws, with \$10,000 capital. Corporators—Thomas Neal, Gleason Murray, O. G. Bennett.

Louisville, Ky.—The Glenn Bauer Motor Co., under Kentucky laws, with \$20,000 capital; to deal in motor vehicles. Corporators—W. F. Glenn, Charles H. Bauer, W. Godfroy.

Vancouver, B. C.—Consolidated Motor Car Co., under Canadian laws, with \$1,500,000 capital; to deal in motor vehicles. Corporators—Thomas Bilyeu, A. L. MacLead, Will Lanning.

Payette, Ida.—The Arnould Automobile Co., under Idaho laws, with \$5,000 capital; to deal in automobiles and accessories. Corporators—George L. Marion, F. Arnould, Alice Arnould, all of Payette.

Rutland, Vt.—Central Garage Co., under Vermont laws, with \$15,000 capital; to deal in motor vehicles. Corporators—Moses H. Farrar, Waldo H. Farrar, Louis Emmons, Ernest Dillon, all of Montpelier, Vt.

East Cleveland, Ohio—The Windermere Garage Co., under Ohio laws, with \$10,000 capital; to deal in automobile supplies. Corporators—W. H. Atkinson, M. J. Miller, K. F. Leet, O. F. Downes, R. A. Lang.

Cleveland, Ohio—The Maclaren Co., under Ohio laws, with \$10,000 capital; to deal in automobile accessories. Corporators—Don P. Miles, Harry H. Hamilton, W. R. Godfrey, M. Marquard, R. W. Sanborn.

New York, N. Y.—American-Marion Sales Co., under New York laws, with \$100,000 capital; to deal in automobiles and other motor vehicles. Corporators—James I. Handley, Charles E. Riess, George R. Morris.

Ridgway, Pa.—The Crown Gasoline & Oil Co., under New Jersey laws, with \$200,000 capital; to manufacture gasoline, operate oil wells, etc. Corporators—A. A. Urman, R. B. Thompson, G. C. Trask, all of Ridgway.

Lancaster, Pa.—Eagle Taxicab Co., under New York laws, with \$50,000 capital; to operate a taxicab and automobile livery service. Corporators—W. G. Pope, R. E. Topping, E. T. I. Thygeson, all of New York City.

Akron, Ohio—The Akron Taxicab and Transfer Co., under Ohio laws, with \$30,000

capital, for the transportation of passengers. Corporators—Charles E. Mills, Harry B. Rosston, Robert Henry, William M. Webb, Fred C. Dibble.

Ithaca, N. Y.—Barr Brothers Hardware Co., under New York laws, with \$30,000 capital; to manufacture and deal in hardware and automobile supplies. Corporators—F. C. Barr, J. M. Chase, W. G. Cobb, all of Ithaca.

Cincinnati, Ohio—The Elmwood Auto Top & Supply Co., under Ohio laws, with \$50,000 capital; to manufacture tops for vehicles. Corporators—Freddie A. Lee, J. P. Anderson, Estrella Anderson, Raymond A. Nessel, Fred. Schanzel.

New York, N. Y.—Manhattan Motor Wagon Co., under New York laws, with \$30,000 capital; to deal in and lease motor vehicles, conduct a livery service, etc. Corporators—Fred J. Galvin, New York City; Egbert Heiderich, Maywood, N. J.

New York City, N. Y.—American-Marion Sales Co., under New York laws, with \$100,000 capital; to manufacture and deal in vehicles of all kinds. Corporators—J. I. Handley, of Indianapolis, Ind.; Charles E. Riess, G. R. Morris, of New York City.

Chicago, Ill.—Langer Auto Castings and Foundry Co., under Illinois laws, with \$7,000 capital; to make castings of iron, aluminum, copper, lead, etc., for automobile parts. Corporators—Conrad P. J. Langer, Joseph Van Creanenbroeck, John Holland.

Clarksburg, W. Va.—Motor Transfer Co., under West Virginia laws, with \$10,000 capital; to conduct general storage, livery and transfer business and deal in motor vehicles. Corporators—Charles N. Slater, H. B. Douglass, Edwin Flory, L. C. Hetrick, C. B. Stout, all of Clarksburg.

New York City, N. Y.—Ashton, Laird & Co., under New York laws, with \$25,000 capital; to manufacture motors, motor vehicles, engines, welding apparatus and all kinds of vehicles. Corporators—W. E. McDonnell, E. R. Rosenbaum, A. B. Malcomson, all of New York City.

Detroit, Mich.—Johnson Bearing Co., under Michigan laws, with \$100,000 capital; to manufacture and deal in bearings and parts of engines, automobiles, etc. Corporators—Charles O. Johnson, Hugh T. Wilson, William H. Dorney, William R. Anderson, Frederick H. Mason and Louis C. Stanley, all of Detroit.

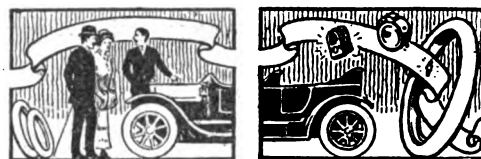
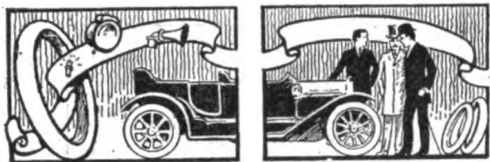
Increases of Capital.

Flint, Mich.—W. A. Patterson Co., from \$200,000 to \$330,000.

Detroit, Mich.—Cross Gear & Engine Co., from \$20,000 to \$80,000.

Akron, Ohio—Swinehart Tire & Rubber Co., from \$400,000 to \$800,000.

Detroit, Mich.—Russel Wheel & Foundry Co., from \$500,000 to \$750,000.



Adolph Lewisohn is building a two-story garage, 121.8 x 78 feet, at Auburn avenue and 158th street, New York City.

James N. Wright has begun the erection of a garage on Gilpin street, between Third and Fourth streets, Denver, Colo.

The White Co. has established a branch in Indianapolis at 510-512 North Delaware street. It is in charge of O. E. Lucore.

V. L. Rogers, Jr., is building a garage 50 x 150 feet, in Memphis, Tenn. It will have entrances on both Monroe and Marshall avenues.

The Speedwell Motor Co. is erecting a new building in Portland, Oreg. It will occupy a lot 100 x 100 feet at Fourteenth and Church streets.

P. H. Carroll is erecting a garage at Main and State streets, Waterbury, Conn. It will be two stories high and will accommodate 100 automobiles.

In Fort Wayne, Ind., work has commenced on a modern fireproof garage for the Fort Wayne-Auburn Automobile Co. It will represent a cost of \$17,000.

Arthur C. Smith has been appointed receiver for George Zisch, doing an automobile business at 960 Springfield avenue, Newark, N. J. Liabilities, \$3,500; assets, \$2,500.

Lester M. Dull, for several years identified with the Parry interests, has secured the agency of that car for California and Arizona, establishing his headquarters in Los Angeles, Cal.

The Whiting Motor Co., of New York, distributors of Mercer and Cunningham cars, have opened a branch in Newark, N. J., at 38 William street. It will be managed by N. H. Sloan.

Henry Schwartz has purchased the interest of L. J. Reminton in the Fon du Lac Auto & Tire Co. He will continue the business under the old title in the Wisconsin town of that name.

The Western Tire & Specialty Co., in which G. H. Fralick is the prime mover, has commenced business at 127 North Market street, Wichita, Kan. It will deal in tires and accessories exclusively.

George K. Wadsworth, former auditor of the Olds Motor Works, has acquired an interest in the Motor Tire & Repair Co., 6506 Euclid avenue, Cleveland, Ohio, of which he has become general manager.

Charles F. Spooner has disposed of his interest in the Hokanson Automobile Co., Madison, Wis., to the Hokanson brothers

and George P. Miller. Spooner was superintendent and a director of the company.

The big garage of the Mt. Pleasant Auto & Machine Co., in the Tennessee town of that name, has been opened to the public. It is run in connection with the machine works and will be in charge of D. G. Horton.

J. M. Hardy, of Sumter, S. C., having obtained the State agency for the Ohio car, has organized the Ohio Sales Agency Co. of South Carolina. Salesrooms will be established at Liberty and Sumter streets, in Sumter.

Gilbert C. Bensinger, long identified with the livery business in Washington, D. C., has entered the automobile trade on his own account. He has been made agent for Maryland and the District of Columbia for the Ohio car.

W. F. Shiek and B. L. Barta, under the firm name of Shiek & Barta, have opened a garage and repair shop in Waterloo, Iowa. It is located at 400 and 402 Fifth street, West. A complete line of automobile accessories will be carried.

A garage, 75 x 120 feet, will be erected at Riverside avenue and Jefferson streets, Spokane, Wash., for W. E. Miller. It will be operated in connection with the Dayton Automobile Co., 1016 Ide street, of which Miller also is the owner.

E. B. Wilson has taken the California agency of the King car and will embark in the business in Los Angeles. For many years Wilson was connected with the National Cash Register Co., most of the time as its Western distributor.

The Shepherdstown Garage Co. is erecting a modern fireproof garage in Shepherdstown, W. Va. The structure will occupy a lot on Main street 100 x 200 feet, and have a capacity for storing 100 cars, in addition to a repair shop and salesrooms.

The Kopmeier Motor Car Co. has broken ground for an addition to its garage at 375 to 389 Summit avenue, Milwaukee, Wis. It will be a separate building 150 feet square, of concrete construction, with steel truss roof, and will cost when complete, \$35,000.

H. A. Lahr and John Flanigan are building a garage on Cherokee avenue, Bartlesville, Okla. They also have announced their intention of starting a gasoline "war" by handling it in carload lots and selling at 15 cents a gallon, while the present price is 20 cents.

The Firestone Tire Co. has leased half of the unfinished building at Compton ave-

nue and Locust street, St. Louis, Mo. The structure, which occupies a lot 85 x 135 feet, is being erected by J. J. Shea for the exclusive use of firms dealing in automobile accessories.

Bentonville, Ark., is to have a \$10,000 automobile salesroom, garage and repair shop. It will be the largest building in Northwest Arkansas devoted to automobiles, and is being erected by W. E. Ammons, J. J. Jones and C. B. Bolton, all of Summer, Miss., which is across the state line from Bentonville.

Fred B. Marson, formerly manager of the Frank Fickling Co., Washington, D. C., has been appointed manager of the District of Columbia branch of the Century Tire Co. John Cashman, who has been acting manager for several months, has gone to Pittsburg, Pa., to take charge of the Century Tire Co.'s branch in that city.

The Bangor Motor Co., which has sold its garage to the city of Bangor, Me., for a central fire station, is erecting a new building of twice the size of the old one, on Main street, which will be ready for occupancy by October 1. The new building will have 46,000 feet of floor space, be two stories high and of concrete, fireproof construction.

The Republic Rubber Co., of Youngstown, Ohio, has commenced the erection of a Pacific Coast branch in San Francisco, at the corner of Hyde and Golden Gate avenues. It will be a two-story and basement pressed brick structure, 70 x 137 feet, and will be ready for occupancy about September 1, at which time M. E. Murray will assume charge, with the title of general western manager.

Recent Losses by Fire.

Philadelphia, Pa.—Charles Schroeder's garage damaged. Loss, \$1,500.

Blairsville, Pa.—Thomas Kerr's garage destroyed. Contents included four cars.

Newark, N. J.—F. L. C. Martin Automobile Co.'s garage, 282 and 284 Halsey street, damaged. Loss, \$2,000.

Mexico City, Mex.—E. N. Brown's garage, Calle de Merida, No. 21, completely destroyed. Contents included four cars and accessories. Loss, \$25,000.

Milwaukee, Wis.—Henry A. Keech's garage, 726 National avenue, burned; six cars and other contents damaged. Loss, \$2,000.

Davenport, Iowa.—P. F. McCarthy's garage, 942 Marquett street, burned; one car and other contents destroyed. Loss, \$10,000.

500 MILES IN 442 MINUTES



THE AMAZING RECORD OF A MODEL CAR

STUTZ DESIGN

A signal triumph for an American designer was the wonderful showing made by the first Stutz car ever built, and entered in the 500-mile International Sweepstakes on the Indianapolis Speedway, May 30th, 1911.

The first Stutz car ever built, but by no means the first car ever built by Harry C. Stutz, was matched against the skill of the best engineers of two continents, many of whom have been working on a single design of car for years, and he made good.

STUTZ CONSTRUCTION

The Stutz car went through the race without a mechanical adjustment, without a relief driver, and averaged $68\frac{1}{4}$ miles per hour for the entire distance of 500 miles, including 13 stops for tires and fuel, surely a marvelous performance—500 MILES IN 442 MINUTES without the least sign of trouble, and after the race, when the car was taken down, part by part, to find out if any weakness whatever had developed in the mechanical construction, we found absolutely nothing we could do to make the car any better.

STUTZ PERFORMANCE

Surely this was the most gruelling test ever given a model car. Mr. Stutz built the car from the ground up in five short weeks, entered it in the greatest race ever run in the history of mo-

tordom and staked his reputation that it would make good. The result more than justified his judgment, and well may a buyer of a motor car repose confidence in the product of such a designer and engineer.

STUTZ QUALITY

The Stutz car entered in the 500-mile race was absolutely a stock car and not a special racer. We are building duplicates of the car entered in this race, in every part of which we use the best material known to man for the work it is to perform. Our claim is that it is not possible for anyone, no matter what price he asks for his car, to build a better motor car than the Stutz. A comparison of our specifications with those of other cars will convince the most skeptical that the time has come when an automobile buyer can purchase a car constructed throughout of the very finest material and workmanship at a moderate price.

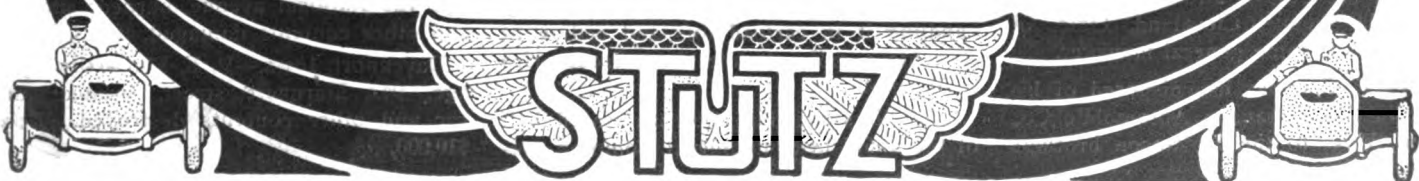
STUTZ RESULTS

Duplicates of the car that went 500 miles in 442 minutes without a single mechanical adjustment can be bought for \$2,000. We are making the Stutz car in three types: roadster, four-passenger and five-passenger. The finish and equipment of these bodies is the best that money and skilled workmanship can produce.

We still have some excellent territory open for live dealers.

Catalog A-4 Gladly Sent Upon Request

IDEAL MOTOR CAR CO., Indianapolis, Indiana
Manufacturers of Stutz Motor Cars





PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

Joseph Goodman, President. R. G. Betts, Treasurer.
F. W. Roche, Secretary

154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) . . . 10 Cents
Foreign and Canadian Subscriptions . . . \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 646.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, JULY 13, 1911.

Misapplying the Term "Fore-door."

As the touring car equipped with front doors as well as rear ones has become the rule, and the open-front car the exception, and as few, if any, of the latter are likely to be listed in the 1912 catalogues, is not the time auspicious to abandon the various designations, "closed-front," "fore-door," "four-door," which have been employed to distinguish the car which had both front and rear doors? To remark the obvious usually is not considered good form and to continue the use of the terms will be almost as bad as stating that touring cars have front and rear seats. It is rather odd, too, that no one ever calls the front seat a "fore seat," or the rear one an "aft seat."

On this subject, the growing tendency to apply the designation "fore-door model" to two-passenger runabouts and roadsters which have been provided with doors, which is discernable in several of the preliminary 1912 announcements, ought to be

checked forthwith, not wholly as a matter of good form but because it is such a manifest and even absurd misapplication. How can a type of car which of its very nature cannot have either or both front doors or rear ones properly be styled a "fore-door model"?

New Theory of Carbon Deposits.

Since the motor world was startled by the revelation that carbon deposit, so-called, was composed in some measure of dust of the common or garden variety, but little has been added to the theory of the subject. That was several years ago, and since that time motorists have gone on patiently chipping away the hardened accumulations from piston and cylinder wall surfaces, squirting liquid preparations into their engines or dropping in short lengths of chain in the hope that by such means they could rid themselves of the heavy encrustations. Nor have they uttered so much as a single protest at the makers' indifference to their interests exhibited by their neglect to provide screens for the carburettor orifices.

It has been recognized that some engines were "clean" engines while others were "dirty," in the sense that they quickly become foul, but that distinct provision might be made on the part of the designer to render an engine clean running throughout its life is an idea that seems never to have gained a foothold—at least not in the right quarters.

A very recent contribution to the science of motor design is that of an investigator who has developed a theory as to the "growth" of the encrustation in question. Carbon deposit, he believes, "grows" very much as coral formation grows, the animalculae being omitted from consideration in this case, as a matter of course. For example, according to the new theory, a leaky valve in permitting a very minute volume of gas to escape serves to cool the escaping increment by reason of the large area of cooling—that is to say, heat conducting—surface in proportion to the volume of vapor passing. Such cooling action, it is held, even though infinitesimal in amount, is sufficient to cause a minute quantity of oily and carbonaceous matter to be deposited about the edges of the orifice. Any liquid or solid particles of carbonaceous matter that may be drawn to the opening likewise will be retained by mechanical action, as in the meshes of a strainer.

This, in a word, is held to explain the origin of the deposit in many cases. Thereafter it is believed that liquid and incandescent particles of carbon are more readily caught by surfaces which already are partially encrusted than by those that are clean, the crust thus spreading over adjoining surfaces in a manner analogous to actual organic growth. Leaky valves or valve caps and valves which have a very gradual opening and closing action, and so permit "wire drawing," thus are apt to prove the nuclei for the formation of deposits that ultimately embrace the entire permanently exposed cylinder surfaces.

Certain it is that oil will adhere more readily to a rough than to a smooth surface and that it will burn from a smooth surface more completely than from a rough one merely because of the uniform thickness of the film in the former instance. In the absence of destructive criticism the theory in its entirety seems worthy of attention. It long has been understood that an engine fitted with cylinders with interiors machined throughout would tend to run cleaner than one in which the customary rough metal was exposed in the head surface. With poppet valve design finished cylinder interiors usually are out of the question, but such is not always the case with rotary and slide valve designs. That the near future may afford practical opportunities for testing the correctness of the theory aforementioned, therefore, is far from unlikely. Obviously the question is one the designer no longer should permit himself to ignore.

Importance of Truck Operating Costs.

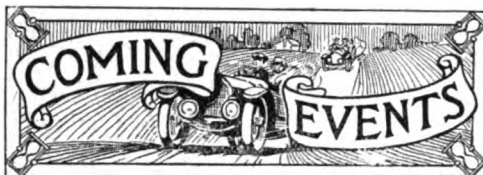
It is a matter for congratulation that the motor truck industry is beginning to arouse to the importance of studying operating costs on a scientific basis. It cannot be said that the question has been put off for too long a time, because, in the natural order of things, operation is sequent to creation, and the problems of design hitherto have been all-absorbing. The time is fast approaching, however, when even the manufacturers themselves will need to know more about commercial vehicle operation than their own researches or their own road tests will tell. The separating of vehicles into classes according to the requirements of different services, the refinements of design and the development of broadest economy are subjects that can be attained only by checking the designer's theories against

actual service, prolonged over long periods and spread over wide areas.

At the same time it is just as well to put the cost question in the right pigeon hole before it is carried any further. There is no need to imagine for a moment that truck costs ever will become an absorbing topic for discussion outside technical circles or that the average business man will consent to pay very close attention to the way in which they are obtained. For centuries horse owners have gone on measuring out oats and plying the whip without thought of the percentage or ton-mileage of return on the equine investment. Even the modern teamster who has grafted a few ideas about business economy has a very poor notion as to what horse-haulage really costs. Nor is there good reason to hope that his conversion to motor traction will render him a very much better economist. His education will progress to a point just short of keeping accurate detailed operation records, and there it will stop.

Not so with the large operator of trucks—the motor transportation agent of the future. As in railway operation and all mechanical undertakings conducted on a large scale, the handling of numbers of commercial vehicles can be carried on profitably only when every item of expenditure is cut down to a minimum and when every avenue of income and outflow is closely and intelligently watched. Like the manufacturer, the wholesale user of trucks is in urgent need of authentic working data. Such as he can compile from his own experience he will make good use of and such as he can obtain from other sources he will weigh and employ or condemn, according to its trustworthiness and applicability. Cost data will become as much a part of his equipment and as much a guide to its administration as the rolling stock itself or the experience of his superintendent. The small user, on the other hand, may be expected to worry along in just about the same old way, content, so long as he gets the right kind of a balance at the end of the year, not to inquire to what train of circumstances he is indebted for it.

This does not mean that the cost question is not worthy of study and development; merely that it is hopeless to attempt to reduce it to a popular diet, and needless to overburden or frighten the unsophisticated "prospect" with its intricacies. For the ambitious student of automo-



July 4-20, Homburg, Germany, to London, England—Annual reliability tour for the Prince Henry cup.

July 14, Philadelphia, Pa.—Reliability contest for motor trucks under auspices of Quaker City Motor Club.

July 15-16, St. Louis, Mo.—Missouri Automobile Association's reliability run.

July 15, Worcester, Mass.—Hill climb under auspices of Worcester Automobile Club.

July 15, Guttenberg, N. J.—Guttenberg Motordrome Association's race meet on Guttenberg track.

July 17-19, Cleveland, O.—The Cleveland News reliability contest.

July 17-22, Milwaukee, Wis.—Wisconsin State Automobile Association's reliability contest.

July 18-Aug. 11, Versailles, France—Military truck competition and subsidy trials.

July 20-23, Minneapolis, Minn.—Minne-

sota State Automobile Association's third annual endurance run from Minneapolis to St. Paul to Helena.

July 23, Le Mans, France—International road race for the French Grand Prix.

August 1, Chicago, Ill.—Reliability contest for motor trucks under auspices of Chicago Evening American.

August 4-5, Brighton Beach, N. Y.—Twenty-four hours race under management E. A. Moross.

August 3-4-5, Galveston, Tex.—Racemeet on Beach under auspices of Galveston Automobile Club.

August 7, Chicago, Ill.—Chicago American's reliability run for commercial vehicles.

August 12, Philadelphia, Pa.—Quaker City Motor Club's annual reliability trial for pleasure cars.

Aug. 12, Worcester, Mass.—Worcester Automobile Club's sixth annual hill climb on Dead Horse Hill.

August 25-26, Elgin, Ill.—Chicago Motor Club's national stock chassis road races

Sept. 2-4, Indianapolis, Ind.—Racemeet on Indianapolis Speedway.

Sept. 2-4, Brighton Beach, N. Y.—Racemeet under management of E. A. Moross.

bile problems there can be no line of more pertinent investigation than that of motor transportation costs. It is a most hopeful symptom that a movement to accumulate reliable information on the subject already is under way. But when it comes to the man who does not know the calorific value of a forkful of hay, or who never has attempted to ascertain the heat balance of the horse, it is as futile to talk cost theory as it would be to attempt to interest a beginner in arithmetic by explaining the binomial theorem. The man who thinks only in terms of results, whom the world deems a "practical" man, will be satisfied if truck economy can be shown otherwise than in mathematical terms. That it can, whether in one, or two, or twenty truck installations is certain.

"Sour Grapes Raised by Barney Oldfield," is not but ought to be the title of a series of articles bearing Oldfield's name which now is appearing in print in a daily paper that appears anxious to exchange good money for spoiled print. Having defied established authority and paid the inevitable result of being a sporting outcast and having sold his racing cars for a good round sum, Berna—which is Barney's

real name, now is condemning and making faces at about everyone and everything that helped him earn an easy living for so many years. His indignation regarding the use of horse tracks, his righteous wrath provoked by professional promoters—"barnstormers," he himself now calls them—his withering condemnation of professional officials—oh! it all is so conscientious and so perfectly dreadful that it must cause a snicker wherever it is read, except perhaps in the newspaper office where he receives payment for such twaddle. "Why," for instance asks the delightful Berna, "should a few professional promoters be allowed to schedule semi-weekly 'meets' in which their own cars compete against a few locally owned cars in the different cities visited?" Indeed it is Berna that asks the fateful question. Think of it! Berna—Berna Oldfield asking such a question; and with "Bill" Pickens still at his elbows helping sign Berna's name to such articles and doubtless getting his share of the "easy money" for doing so! It's tough to be an outlaw, but as Oldfield probably has heard the sour grapes fable, if he can cease chuckling long enough to do so, Pickens ought to relate to him the story of the dog in the manger.

LAMPS FOR ALL IN THE BAY STATE

New Law Requiring Them Becomes Effective Next Sunday—Does Not Apply on Lighted Streets, However.

On and after Sunday next, 23d inst., "every vehicle on wheels" used in the State of Massachusetts must display a lighted lamp, visible from the front and rear—unless the vehicle happens to be on a lighted street or highway, unless it is loaded with hay or straw or unless the owner of the vehicle happens to be possessed of a special written dispensation issued by the Massachusetts Highway Commission. Motor vehicles, however, are not included in these "unlesses." After nightfall they must continue to display lights under any and all conditions; but despite the fact their owners will not be inclined to quarrel with the new law which becomes operative on Sunday next. It represents the fruits of several years' effort on the part of the American Automobile Association, which until the last session of the Massachusetts legislature was defeated by the outcries of farmers, real and political, who could not understand why they should be subjected to the expense and inconvenience of carrying lamps simply to prevent accidents.

The full text of the new law, which constitutes Chapter 578 and is entitled "An act to require certain vehicles to carry lights at night on public highways and bridges," is as follows:

"Sec. 1. Every vehicle on wheels whether stationary or in motion, on any public highway or bridge, shall have attached to it a light or lights which shall be so displayed as to be visible from the front and the rear during the period from one hour after sunset to one hour before sunrise; provided, however, that this act shall not apply to any vehicle while upon any lighted street or highway where street lights are maintained at a distance of five hundred feet apart or less, or to any vehicle designed for the transportation, as its principal freight, of hay or straw while loaded with such freight.

"Sec. 2. Upon the written application and presentation of reasons therefor by the owner of a vehicle, the Massachusetts highway commission may, in writing, in such form and subject to such requirements as it may elect, and without expense to the applicant, exempt said vehicle from the provisions of this act for such period of time as said commission may elect.

"Sec. 3. Any person who, while driving or in charge of or occupying a vehicle, during the period from one hour after sunset to one hour before sunrise, shall refuse, when requested by a police officer, to give correctly his name and address, shall be punished as provided in section six of this act.

"Sec. 4. Nothing contained in this act shall be construed to affect the provisions of any existing statute, rule or regulation requiring lighted lamps on motor vehicles and the obligations of operators or occupants thereof.

"Sec. 5. The driver or custodian of a vehicle shall be deemed to be the responsible party and liable to the penalty as provided in this act for a violation thereof.

"Sec. 6. Any person violating the provisions of this act shall be subject to a fine not exceeding five dollars."

Omaha "Drummers" in Endurance Contest.

Eleven automobilists left Omaha, Neb., Monday morning, 10th inst., in an endurance contest which in its way is unique, in that the contestants all are salesmen of the Omaha Rubber Co., and each drives his own car. The cars have been in use for more than a year, as these knights-of-the-road find traveling by automobile much more advantageous than the railroads. Each man thinks his machine the best, although some drive runabouts and others have large touring cars, and in order to let them settle their arguments, their employer gave the men a week's vacation and arranged an itinerary, which includes all the principal towns in Western Idaho and Eastern Nebraska in which the company does business. A time limit has been set for the arrival in each of the places on the itinerary. Each day's trip will average about 160 miles in 12 hours' travel. During the six days 94 towns will be visited. As the Omaha company handles United States tires, it is easy to guess what tires the salesmen are using.

Norristown Racemeet is Abandoned.

The racemeet which was to have been held on July 8, under the auspices of the Norristown Automobile Club, on the Belmont track in Philadelphia, Pa., has been abandoned. Though the promoters were thoughtful enough to anticipate the possibility of rain and in the entry blanks provided for a postponement until the 15th inst. if J. P. should intervene, they exercised a greater prerogative in calling the whole affair off entirely. Though no particular reason for the abandonment is given, it is probable that lack of entries was the principal cause.

Henry County Motorists Organize.

The Henry County Automobile Association is the style of an organization which was formed last week in Clinton, Mo. The officers for the first year are: President, E. T. Montgomery, of Clinton; vice-president, G. W. Schweer, of Windsor; second vice-president, S. B. Osborn, of Deepwater; secretary, Will A. Dougherty, of Clinton; treasurer, John Bowen, of Windsor; press representative, John Smith, of Clinton; directors, C. J. Keil, Clinton; J. Miller, Ulrich; A. Wally, Montrose; J. W. Gallihugh, Blairstown; George Woods, Deepwater.

STATUTE IS UNCONSTITUTIONAL

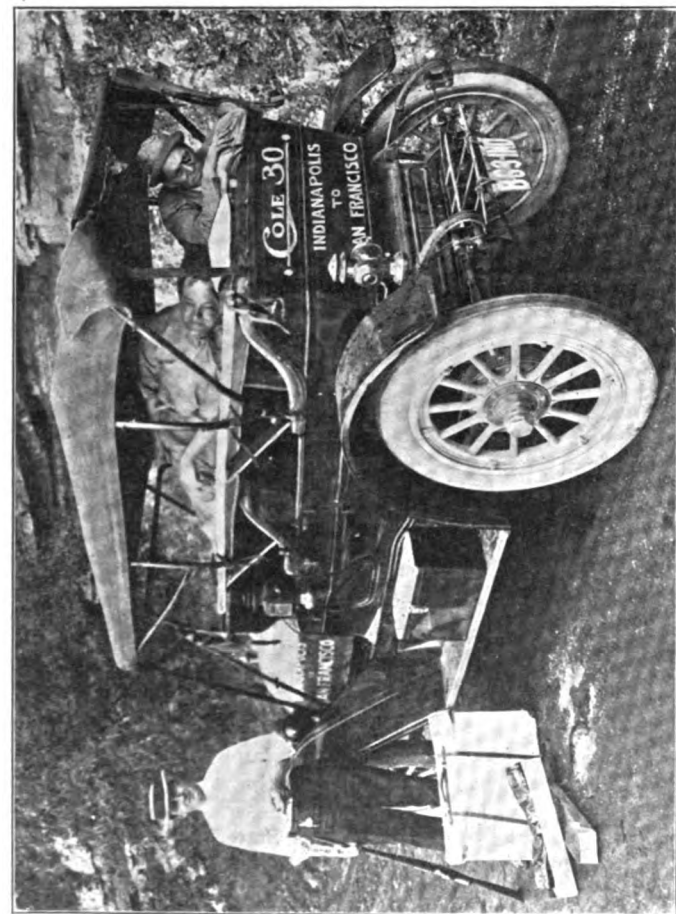
Appellate Division Decides Motorists Cannot be Required to Notify Police of Accidents—Two Judges Dissent.

In New York State, at least, no motorist will have to bear witness against himself. This is the opinion of the majority of the judges of the Appellate Division of the Supreme Court, in the case of Edward T. Rosenheimer, who had been indicted for an alleged violation of the Callan law. It will be recalled that Rosenheimer was tried and acquitted on the charge of the murder of Grace Hough, who was killed by being thrown from a buggy with which Rosenheimer's car collided on Pelham Parkway, New York, on the night of August 18, 1910. Afterwards he was indicted under the Callan law, which makes it a felony punishable by a \$500 fine or two years in prison to fail to stop after an accident and give name and address to the police.

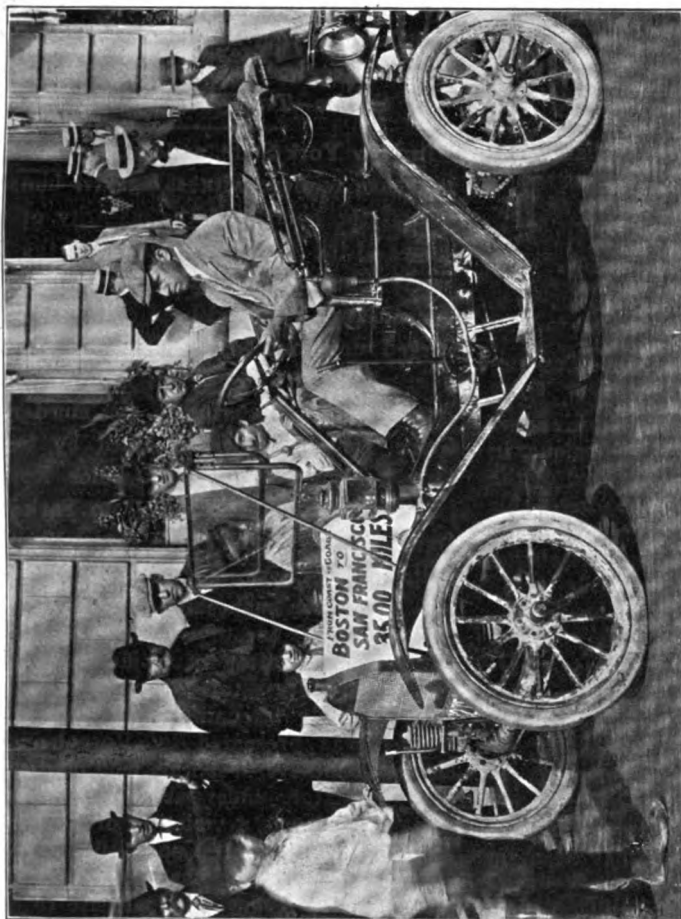
Immediately after the indictment a demurrer was presented by Rosenheimer's lawyer, James W. Osborne, who contended that the statute under which Rosenheimer was indicted was a violation of Section 6, Article 1, of the State Constitution of New York, which provides that no person shall be compelled in any criminal case to be a witness against himself. Osborne maintained that compelling a motorist to return after an accident and give his name and address was equivalent to forcing him to testify against himself, and that the law requiring it was therefore unconstitutional. This view was accepted by Justice Crain, of the Supreme Court, who dismissed the indictment in April last. The district attorney, however, carried the case to the Appellate Division, which, by a divided vote last week, sustained the opinion of Judge Crain, Justices McLaughlin, Loughlin and Dowling voting to sustain the lower court, and Presiding Justice Ingraham and Justice Miller dissenting. In his dissenting opinion Justice Ingraham holds that the statute does not relate to a criminal action, nor does it make the declaration of the person operating the automobile admissible evidence in criminal actions.

"The use of these motor vehicles has created a new condition, in which, those using the streets are subjected to serious dangers," he adds. "The Legislature, to protect the citizens, has made it the duty of the one causing the accident to stay at the place of the accident and give proper notice to the police. Certainly common humanity would impose such a duty, and I cannot believe that a statute which imposes and enforces it would violate the Constitution of this State."

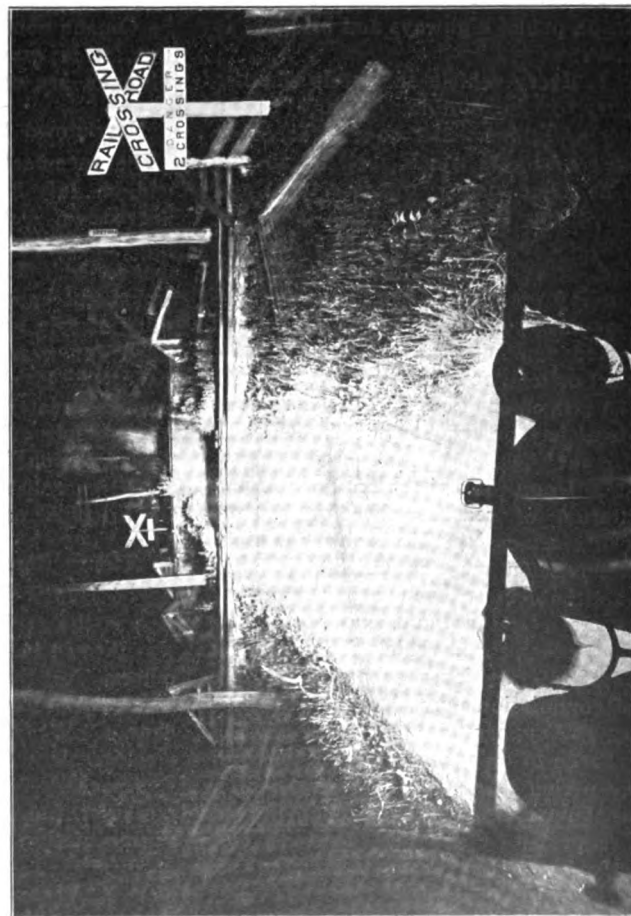
The district attorney has entered an appeal and will have the Court of Appeals pass on the point.



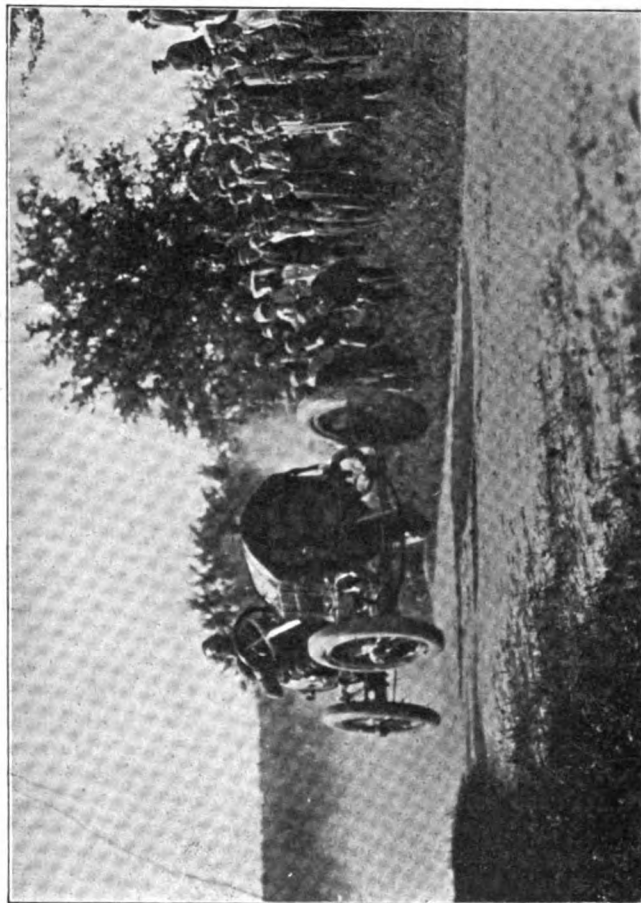
Des. C. W. Keel and A. J. Williams, Indianapolis-San Francisco Tourists, and Their "Camping Out" Cole 30.



Harry Green, Who is Touring the 3,500 Miles of Highway from Boston to San Francisco in His Brush Runabout



Striking Demonstration of the Remy Magneto Light. Showing Its Clean-Cut Illumination of Two Separate Railway Crossings.



Belcher (Knox) "In the Air" After Striking a Water Bar in the Poland Springs (Me.) Hill Climb, June 17.

DAVENPORT SEES DOUBLE DOINGS

Hill Climb in the Morning, Racemeet in the Afternoon—Peterson Family Acquires Most Prominence.

The natives of Davenport celebrated a "safe and sane" Fourth this year, though there was not the remotest possibility of their suffering from ennui as a result; there were no less than two automobile race-meets in that Iowa town on Independence Day. Or rather, there was one racemeet and one hill climb—which is just a little bit more automobile speeding than even a city of the first class might expect in the course of a single day. The racemeet was held in the afternoon under the auspices of the Tri-City Speedway Association on the Tri-City Speedway, which is nothing more than an abandoned horse racing track, and the hill climb was held more or less in the city streets, with the Davenport Automobile Club as its sponsor. The hill climb was not sanctioned by the American Automobile Association, a sanction being unnecessary, as the affair was closed to members of the club.

Though there was practically no policing of the course over which the hill climb was run, which was approximately one-third of a mile in length, and the populace at large swarmed over it at will, winners were evolved in four classes without accident; the judges still are busily figuring out who won the other two classes. The fastest time made on the hill is credited to A. C. Peterson, who drove a Pope-Hartford up the incline in 17 seconds. It has not been decided whether this time will be allowed, however, as it was made in Peterson's second trial. The winners who have been officially announced are as follows:

Class 1, cars costing less than \$1,000—Won by G. H. Knowles (Overland), 28 $\frac{3}{4}$ seconds; second, Wm. Roeske (Ford), 29 $\frac{1}{4}$ seconds.

Class 3, fully equipped cars costing from \$1,500 to \$2,500—Won by C. S. Pope (Midland), 23 $\frac{1}{4}$ seconds; second, W. L. Velie (Velie), 25 $\frac{1}{4}$ seconds.

Class 4, fully equipped cars costing over \$2,500—Won by Walter Priester (Pope-Hartford), 23 $\frac{3}{4}$ seconds.

Class 6, handicap for age of car (handicap not yet decided)—Won by Dr. Karl Vollmer (Pope-Hartford), 24 $\frac{1}{4}$ seconds.

But part of the so-called Speedway had been oiled for the racemeet, which was held in the afternoon, and as a result the great clouds of dust and the poor condition of the track in general precluded the possibility of fast time being made. Pete Peterson, who drove a Pope-Hartford most of the time, though his first mount was a Hudson, with which he won the curtain raiser easily, was the principal performer.

In addition to the race for cars in the "baby class," he also accounted for the one mile free-for-all and was second in both the five miles event for cars costing from \$1,601 to \$2,000 and the ten miles free-for-all. The summary:

Five miles, class C, division 2C—Won by Pete Peterson, Hudson; second, W. E. Roeske, Ford; third, E. J. Dillon, Hupmobile. Time, 6:09.

Five miles, class C, division 3C—Won by M. C. Armstrong, Colby. Time, 7:06 $\frac{3}{4}$.

Five miles, class C, division 4C—Won by A. Burt, Buick; second, Pete Peterson, Pope-Hartford; third, Hall, Midland. Time, 10:48 $\frac{1}{4}$.

Fence Suffers at Kansas City Meet.

Though they were sandwiched between an equal number of motorcycle races, the four automobile races which were decided on July 4th at the Elm Ridge track, which is in Kansas City, Mo., were considerably more than half the show, contributing as they did by far the greater part of the afternoon's thrills and excitement. The original plans of the Kansas City Automobile Dealers' Association, which organization was responsible for the meet, included six automobile races, but owing to lack of entries, two of them, one at five miles for small stock touring cars and another at 10 miles for stripped racing cars in the 600 inch class, were scratched.

The track was in very bad condition; dust arose in tremendous clouds and before a very great time had elapsed the soft earth at the turns had become so badly cut up that accidents were avoided by miracles. In fact several of the cars did go through the fence, though none of the contestants were hurt seriously. No particularly fast time was made in any of the events, and in practically every instance they were won easily. A fifty miles free-for-all was the feature event of the day and it brought out a field of nine starters. By the time the half-way mark was reached, however, the drivers of two Warren-Detroits, a Cino, a Cole and a Velie had withdrawn, and thereafter Ralph Ireland, who had the mount on an Inter-State, had things pretty much his own way. He won in 56:50.03, with W. H. Pearce (Fal), Frank Sloan (National) and Gus Monckmeier (Staver-Chicago), second, third and fourth, respectively. The summary:

Ten miles, class C, 231-300 inches displacement—Won by Edward Raimy, Cino; second, W. H. Pearce, Fal; third, Gus Monckmeier, Staver-Chicago. Time, 10:33.04.

Five miles for private owners—Won by Jack McLean, Velie; second, Edward Potts, Cole. Time, 5:38.64.

Ten miles free-for-all—Won by Ralph Ireland, Inter-State; second, W. H. Pearce, Fal; third, E. Raimy, Cino. Time, 10:52.60.

Fifty miles free-for-all—Won by Ralph Ireland, Inter-State; second, W. H. Pearce, Fal; third, F. Sloan, National. Time, 56:50.03.

HOT WORK IN HIGH TEMPERATURE

Rough Road Races in San Joaquin Valley with Thermometer at 110 Degrees—Herrick and Nikrent Win.

There were some hot road races at Bakersfield, which is in the oil district of California, on Independence Day. The races themselves were not hot in the sense that they were keenly contested, however, Harvey Herrick (National) winning the free-for-all by something over two laps of the 11.15 miles course, and Louis Nikrent (Buick) having things pretty much his own way in the light car event, though everything else was anything but cool; the mercury stood at 110 degrees in the shade. It was the first time that automobiles had participated in a road race in that particular locality—the Kern County Merchants' Association was responsible for the affair—and the natives are keen for more. Whether or not they will get it, in view of the poor management, remains to be seen. Spectators ran all over the course and the so-called guards were conspicuous by their absence. In the meantime, many arguments for and against making the function an annual affair are in progress.

A good part of the course was laid in the San Joaquin valley, and it was one of the roughest over which a race ever has been run. Starting about one mile out of Bakersfield, the route led northeast through the oil region and then north about three miles, making a sharp turn over the Kern river to the base of China bluff, a tableland with a 12 per cent. grade and many sharp turns, "S," "hairpin" and otherwise, on the narrow road to the summit. Thence over a specially prepared roadway, the course led to the finish line. Notwithstanding the unusually rough, and in places precipitous, road, there were no serious accidents, though one driver, J. J. Jeffries (Buick), had a narrow escape when his car overturned; however, neither he nor his mechanic were injured seriously.

The light car race, which was the first on the program, was started at 7:30 in the morning, the following drivers and cars lining up: Glen. Packer, Ford; G. F. Weathers, Chalmers; Harry Buckley, Franklin; J. J. Jeffries, Buick; Frank Siefert, Mercer; Louis Nikrent, Buick; D. D. Phillips, Haynes. The race was slated to go 100.35 miles, or nine laps of the course, and for the first five laps, Packer, in the Ford, led the field. D. D. Phillips (Haynes) was the first to retire, carburettor trouble on the second lap putting him out of the running. He was quickly followed by Jeffries, whose Buick overturned on the fourth lap, and Siefert in the Mercer withdrew in the fifth lap because of tire troubles. From the fifth lap to the finish Nikrent held his

Buick in the lead, winning in 2:15:00 $\frac{3}{4}$. Weathers (Chalmers) was second in 2:19:44 $\frac{3}{4}$, and Packer, in the Ford, came in third in 2:44:42 $\frac{3}{4}$. None of the other drivers finished.

Of the eight drivers who were entered for the free-for-all at 156.1 miles, two failed to put in an appearance and two were scratched almost at the post, leaving the following to fight it out among themselves: Harvey Herrick, National; Bert Dingley, Pope-Hartford; Frank Siefert, Mercer; Louis Nikrent, Buick. Promptly at 11 o'clock the first of the four drivers started on their 14-lap journey, Herrick being the first to get away. Nikrent quit on the second lap when a bearing burned out in his Buick, and it then became apparent that it

BOAT'S LONG VOYAGE OVER LAND

Vandervoort Finds a Problem and Promptly Disposes of It—Boat's Launching More Novel than Its Voyage.

Not inappropriately, some automobiles have at various times been styled "boats"; indeed, amphibious boats and amphibious automobiles, are not altogether unknown. The juxtaposition of automobile and boat shown in the accompanying illustrations, however, is, to say the least, unusual. While instances where boats have been carried on automobiles are fairly common, this is the first time, as far as is known, that one of

that this time might have been cut almost in half had the roads been in even their ordinary condition. Several times it was necessary to stop and put guy ropes on the boat to prevent it from tipping over, as boat and car slipped over almost into the ditches at the sides of the road. Though the average schedule called for an average speed of 10 miles an hour, only part of the trip, the 62 miles between East Moline and Dixon, Ill., was made at that rate. As a matter of fact the schedule was beaten between those points, the running time being five hours and 55 minutes.

But as novel as was the method of transporting the boat the long distance over land, the launching was even more so. Arrived at Lake Delavan, the outfit was



HOW WEE WEE MADE ITS OVERLAND JOURNEY



THE NOVEL LAUNCHING OF THE WEE WEE

would be a duel between Herrick and Dingley. Later, however, Dingley, too, had trouble, a broken valve spring on the ninth lap causing a delay which allowed Herrick to open up a gap of two laps, and from then on to the finish line, which was crossed in 2:58:58 $\frac{3}{4}$, the race was practically without competition. Siefert, in the Mercer, also had trouble early in the race, and when the contest was called off he had covered seven laps. He got third place, his time for the seven laps being 3:16:15, and Dingley (Pope-Hartford) was second in 3:01:58. The summary:

Light car race, 100.35 miles—Won by Louis Nikrent (Buick), time, 2:15:00 $\frac{3}{4}$; second, G. L. Weathers (Chalmers), time, 2:19:44 $\frac{3}{4}$; third, Glen Packer (Ford), time, 2:44:42 $\frac{3}{4}$. No others finished.

Free-for-all, 156.1 miles—Won by Harvey Herrick (National), time, 2:58:58 $\frac{3}{4}$; second, Bert Dingley (Pope-Hartford), time, 3:01:58; third, Frank Siefert (Mercer), time for seven laps, 3:16:15.

The Georgia Automobile Club has been formed at Atlanta, Ga., with the following officers: President, G. W. Hanson; vice president, F. J. Long; second vice president, C. L. Elyea; secretary-treasurer, W. F. Gordon.

them has been towed and actually launched with the help of an automobile.

The boat, which is 28 feet over all and is equipped with a 35 horsepower motor, was built by W. H. Vandervoort, president of the Moline Automobile Co., at the Moline factory in East Moline, Ill., and the problem of transporting it from there to his summer home on Lake Delavan, Wis., a distance of 150 miles, was worked out in a decidedly novel manner. The bow of the boat was rigged over the rear axle of a stock model "Dreadnaught" Moline "35," equipped with standard 36 x 3 $\frac{1}{2}$ inch tires in the front and 37 x 4 inch tires in the rear, the stern of the boat being carried on an extra pair of wheels shod with 37 x 3 inch tires. The total length of the automobile and its "tow" was slightly over 36 feet and the weight of the complete outfit was 7,200 pounds.

The roads over which the boat was hauled never have been noted for their excellence, and with the advent of heavy rain which lasted a considerable part of the time, they became worse than ever. Despite the slippery clay, almost hub deep for part of the trip, and the fact that the extreme length of the outfit caused it to slew around quite easily, the entire trip of 150 miles was made in exactly 23 $\frac{1}{2}$ hours, though it is possible

simply backed into the water until the boat floated, when the lashings were taken off the bow and the extra wheels under the stern hauled to their logical place on terra firma. It is evident that "Wee Wee" rightfully is styled an "automobile" boat.

Indiana Humiliation Valued at \$5,000.

Stilesville, which is in Hendricks County, Indiana, although a village of but 357 population, has made a bid for fame, and all because a young automobilist, resident in the village, wandered over into Morgan County, and in Martinsville, the county seat, which has a population of 4,600, found a girl who enjoyed moonlight rides. When she concluded to end the ride by returning home, the Stilesville swain declined to return. The lady assured him that she was "not that kind of a girl," but it served no purpose, and when finally they did get back to Martinsville, the lady, who happened to have a husband, found herself humiliated to the extent of \$5,000. As she is a minor, the husband, as her next friend, has created quite a stir in the center of the Hoosier State by entering a suit against the gay young blade of Stilesville for that amount in the District Circuit Court. It is expected that the testimony will give two counties something to talk about.

Motor Cars that Smoke; the Causes and the Cures

"Now, your Honor, any car is apt to smoke up hill, and besides, I was only running about eight miles an hour, when this officer . . ."

"Never mind about the officer. Did, or did not, your car emit smoke while going up the 110th street hill, on the particular occasion of which we are speaking?"

"Why, I suppose it might have smoked just a little. It's just this way: When the car begins to go up grade, y'understand, your Honor, why the oil in the crank case . . ."

"Five dollars . . ."

Thus does society take toll of innocence and thus does the unsophisticated motorist

traffic squads of the New York police, hundreds of heedless motorists recently have been haled into court and made to pay the \$5 penalty for driving a smoking motor. Already a marked and two-fold effect has been manifest. In the first place the atmosphere in the vicinity of traffic-laden streets has been visibly clarified, and in the second place automobile owners have begun to evince a lively and personal interest in the lubricating systems of their engines such as never before was known.

At first a spirit of rebellion prevailed and a sentiment that a gross injustice was being done a particular and much-oppressed class of citizens. The succeeding mood was one

no need for the engine to yield a smoky exhaust. Some of them have even devised oiling systems whereby they claim smoking is absolutely prevented, while all of them are striving to secure effective lubrication without waste of oil. For if, as already has been stated, a smoky exhaust is an infallible symptom of over-lubrication, then it must follow that it is equally a sign of oil waste. Safe to say those representatives of the social system who were responsible for the anti-smoke crusade that just now is being waged in New York had no intention of enforcing oil economy on the automobile fraternity, yet such is the direct effect of their efforts.

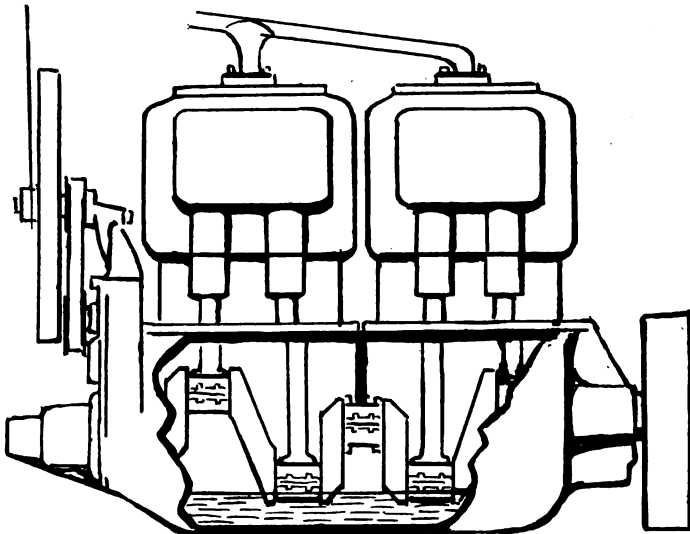


FIG. 1—SIMPLE SPLASH LUBRICATION, CAR LEVEL.

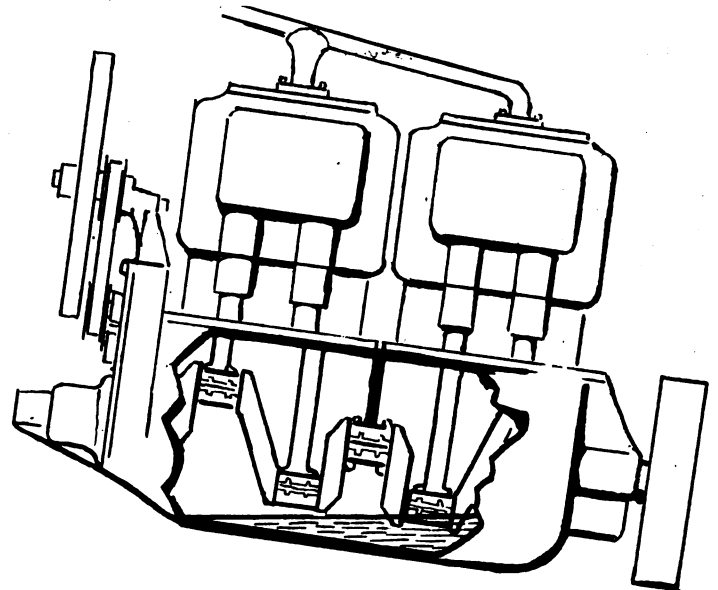


FIG. 2—SIMPLE SPLASH LUBRICATION, CAR ON GRADE.

come to discover that gasoline, oil and tires do not constitute the only items of expense in the operation of an automobile. The only trouble is that the motorist who blushing is forced to admit that he has been "hitting it up," or that his course down the avenue has been marked by a trail of thin blue pungence, usually fails to recognize in his predicament the will of the people. Instead he is apt to confer a degree of hatred on the "cop" who happened to catch up with him or the judge who was unfortunate enough to have to listen to his faltering efforts at defense. It is the will of the people, however, though expressed in a roundabout way, it is true, that of certain specified things that shall or shall not be, the smoking automobile shall be included in the "shall nots." Such, at least, is the case in New York City, and so it may come to be elsewhere, in the larger cities and towns, as it has abroad.

Through the efforts of the health and

of extreme caution, and the result amounts to a tacit admission that, contrary to numerous allegations, smoking is not necessary to proper engine working and that it can be prevented. Further evidence in point is the action of certain of the metropolitan taxicab companies in establishing instruction classes for their chauffeurs with the object of teaching them how properly to care for their motors, how to lubricate them effectually and how to prevent over-lubrication; which is the seat of the whole smoking difficulty, generally speaking. Supplementing such instruction in one or two instances, word has gone forth that hereafter chauffeurs who are arrested for the smoking of their engines will have to pay their own fines; which amounts to an open declaration that the cab officials are of the opinion that the smoking of an automobile engine is wholly a personal offense.

As a matter of fact, automobile engineers long have been of the opinion that there is

Coming directly to the mechanical side of the question, smoke, that is to say a visible exhaust, may be due to one of three causes or to a combination of either or all of them. Ordinarily it is caused by the burning of oil in the cylinder. To be more exact, it is caused by the partial burning of oil in the combustion chamber. The truth of the matter is that, despite the intense heat of the combustion chamber it is insufficient to effect the complete combustion of the oil when it is present in great abundance, or when it is of an unsuitable grade. The smoke, therefore, is merely unconsumed carbonaceous matter, which is held in suspension in the exhaust gases. If the exhaust is permitted to impinge against metal surfaces the carbon is precipitated and a carbon deposit is formed. This is the principal source of the carbon deposits on the interior of the cylinder head, that is responsible for so much ignition trouble, it may be added. Generally speaking, oil

smoke is blue or bluish black, its color and constituency depending on the composition of the oil and on the temperature conditions within the engine.

A second source of smoky exhaust is a rich mixture, the result of which is a characteristic black smoke. This is caused when an insufficient amount of air to effect complete combustion is present in the cylinder and when, in consequence, a certain proportion of the fuel is converted into free carbon, which, in some instances assumes much the same characteristics as plain soot. Black smoke, therefore, is due ordinarily to improper carburettor adjustment and as, in addition to being absolutely needless, it is indicative of fuel waste, it is hardly to be considered as a common cause of

indicative of engine trouble and, therefore, demand instant remedying, there is no need to consider them further in looking for means of smoke prevention. It is oil smoke ordinarily that causes annoyance and which can be prevented only by observing special precautions, for, ordinarily speaking, an overabundance of oil does not immediately reveal itself in the working of the engine. Indeed, with good ignition apparatus, it is possible to run many engines for long periods with an excessive oil supply without noticeably unpleasant results. Smoking always is accompanied by carbonizing of the cylinder walls and ports, however, and if permitted to continue invariably is followed by more or less preignition trouble. It is, therefore, in the interests of the

sary only to arrange and proportion the distributive system in such a way that certain relative quantities of the lubricant will be delivered to the feeding points at all times and regardless of external conditions. It also is necessary that in respect to piston lubrication only a sufficient quantity shall be fed to ensure an ample supply of oil throughout the length of the bore without an excess being rubbed and squeezed above it into the combustion chamber. To simplify matters in advance, be it added that the problem is largely one of proper oil level regulation in the crank case. To attain this, however, is not always as simple as may appear.

In Fig. 1, of the accompanying illustrations, is suggested in outline the arrange-

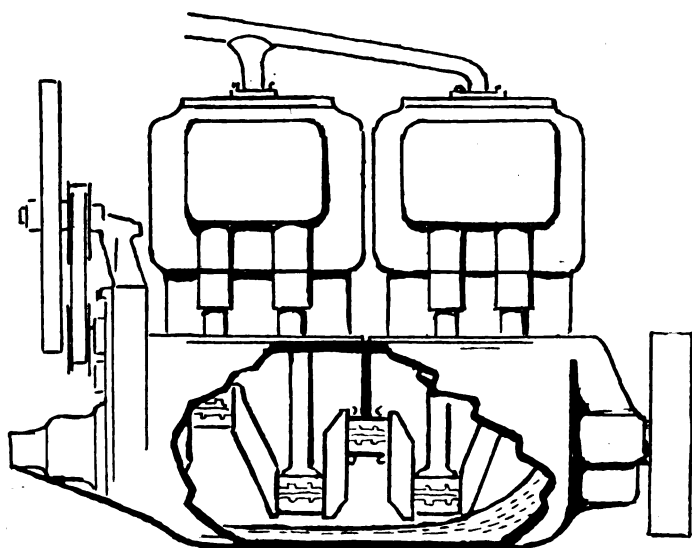


FIG. 3—EFFECT OF SUDDEN START ON SPLASH

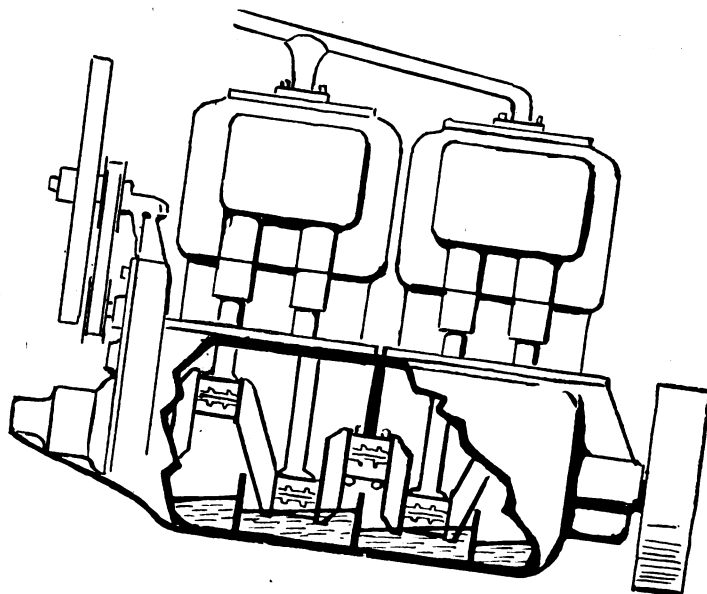


FIG. 4—HOW DAMS PREVENT OIL WASHING

smoky exhaust. Occasionally it may be due to the use of a poor grade of fuel, containing exceptional quantities of oily matter, the result being a smudge which more or less resembles the smoke resulting from overlubrication, except that it is thinner.

The third and rarest cause of visible exhaust is steam. With the high temperatures which ordinarily prevail in an engine that is working properly, of course, any water that might find its way into the cylinder in small quantities, as for instance, by entrainment in the gasoline, would be broken up into its constituents and would not retain its qualities as steam. A small crack in a water jacket surface, however, occasionally may reveal itself by delivering enough water into the cylinder or into the exhaust port to cause appreciable quantities of white or whitish vapor to appear at the end of the exhaust pipe. Naturally this manifestation is exceedingly rare. A more likely cause of steam formation is a faulty gasket under a detachable cylinder head, which permits water to leak into the cylinder.

As the two secondary causes of what the public would designate as "smoke" are in-

car owner to prevent it, entirely apart from the ethical question of atmospheric pollution.

In speaking of overlubrication it is necessary to distinguish between the requirements of different parts of the motor. Generally speaking, it is assumed by the layman that if the motor is properly lubricated in one spot the same condition prevails elsewhere. This fallacy must be dispelled at once. Overlubrication of the smoke-producing variety occurs only when excessive quantities of oil are present in the cylinder above the highest point of piston travel and, therefore, in a zone in which no lubrication is required. Except for the oozing of oil around the external ends of bearings with consequent soiling of the motor, this is the only point where an excessive oil supply in any way is to be considered injurious, but it does not follow that an excess of oil in the cylinders always is accompanied by a supply in excess of the actual requirement in other localities. The smoke question, therefore, resolves itself mainly into a question of distribution.

To attain a smokeless engine it is neces-

sary only to arrange and proportion the distributive system in such a way that certain relative quantities of the lubricant will be delivered to the feeding points at all times and regardless of external conditions. It also is necessary that in respect to piston lubrication only a sufficient quantity shall be fed to ensure an ample supply of oil throughout the length of the bore without an excess being rubbed and squeezed above it into the combustion chamber. To simplify matters in advance, be it added that the problem is largely one of proper oil level regulation in the crank case. To attain this, however, is not always as simple as may appear.

Theoretically this system works very well indeed, being also delightfully simple. Its effectiveness depends on retaining the oil at the proper level, however. Nor is this merely a question of maintaining the correct amount of oil in the case at all times, as at first might appear. When the crank case is tipped as a result of the inclination of the car on a grade, the oil exhibits a very natural tendency to run to the lower

end in seeking its own level. The effect is shown in Fig. 2, wherein it is plain to see that the rear end of the case contains too great a depth of oil, in consequence of which the rear cylinders are certain to be flooded to the point of smoking. Similarly the front cylinders will be starved for the time being, as the oil is so low in the forward part of the case that the forward cranks will not dip. This condition obtains with a crank case of the type illustrated whenever the car is inclined on a grade; which cylinders are starved and which are flooded depends on whether the car is headed up or down hill.

Still another difficulty is the tendency of the oil to swash about under the influence of its own inertia. The point is illus-

trated in Fig. 3, wherein the effect of suddenly starting the car is indicated. As the car begins to move forward the oil in the case tends to back up against the back end of the case, very much as shown. The result is that the rear cylinder is temporarily choked with oil while the other three for the time being are starved. A corresponding action occurs when the car is stopped abruptly, while in running any sudden acceleration is apt to produce a surging movement of the oil in the case.

with splash oiled engines are still on the road, however, is unquestionable, so that it is worth while to consider the remedy which has been applied in many instances by designers in seeking to avoid the difficulty. This is nothing more nor less than to construct a series of dams in the case, one between each pair of cranks. The principle involved is so plainly indicated in Fig. 4 as to require no explanation.

In some instances a two-compartment case is used, in which a solid partition separates the two sections, each of which has its own feed pipe delivering oil from an automatic pump. In other cases, three dams are used in a four-cylinder motor and five in a six-cylinder, only one or two feed pipes being used, or else the oil arriving at

them out to the exact size of the cylinder bores, to leave only a slot just wide enough to permit the connecting rod ample clearance and of sufficient length to allow it to work back and forth in following the crank. In contriving such an arrangement it will be necessary to slit the metal out to one side from each slot in order to permit it to be bent up and afterward straightened out in order to admit the connecting rod to the slot.

When such baffle plates have been installed, the amount of oil actually reaching the cylinders will be considerably reduced—dangerously so, in fact, unless special precautions are taken to see that enough oil is being splashed up by the cranks. Increasing the depth of oil in the case or enlarging

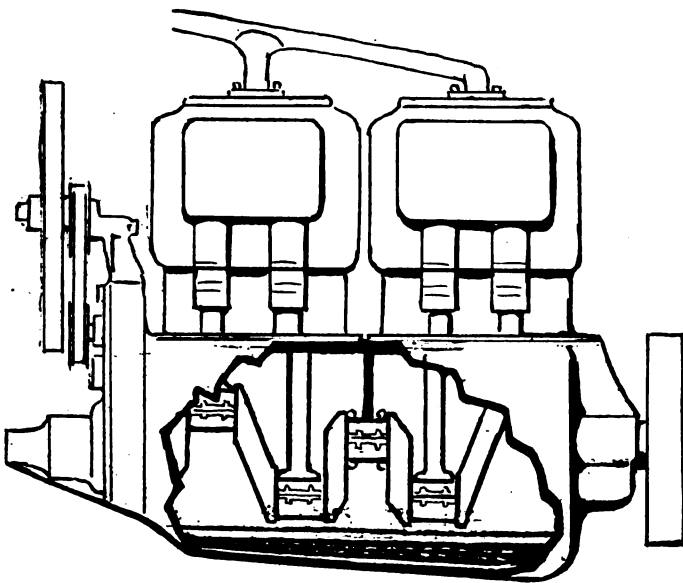


FIG. 5—NON-EFFECT OF SPLASH WITH DOUBLE BOTTOM.

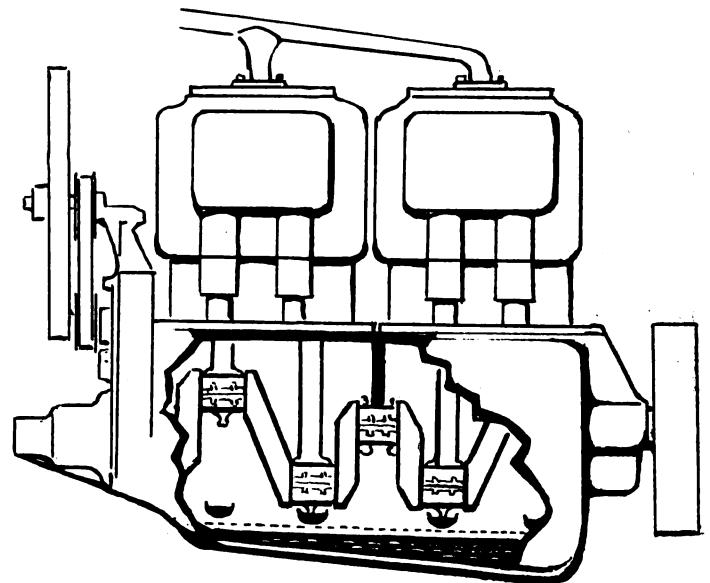


FIG. 6—MODIFIED SPLASH WITH MOVABLE TROUGHS.

trated in Fig. 3, wherein the effect of suddenly starting the car is indicated. As the car begins to move forward the oil in the case tends to back up against the back end of the case, very much as shown. The result is that the rear cylinder is temporarily choked with oil while the other three for the time being are starved. A corresponding action occurs when the car is stopped abruptly, while in running any sudden acceleration is apt to produce a surging movement of the oil in the case.

These two illustrations serve to show why it is that some engines are apt to smoke when going up or down hill and when being started. In either case, it will be observed that the action can be but temporary, while it is further evident that smoke generated under such conditions must come in distinct puffs, corresponding to the exhaust of the overoiled cylinders. With a high oil level, of course, the effect will be more noticeable than with a low one.

Fortunately motors constructed in this way are now seldom made, other oiling systems having pretty generally replaced the simple splash. That many cars equipped

the bottom of the case by draining from the ends of the crank shaft bearings, to which a fresh supply is being fed at all times. In such cases, it is necessary for holes to be drilled through the dams at one or two points in order to permit the oil to level itself in the various compartments. The theory is that sufficient oil will flow through the holes to prevent unequal accumulations occurring in the various crank pits, but that the movement will be so slow that no flooding effect will be appreciable when starting or stopping, or while climbing grades of ordinary length.

It is almost superfluous to add that motorists whose cars are fitted with open cased engines readily may prevent the oil surging action by riveting suitable dams of sheet metal in the case, providing proper means for the oil to find its own level. Another method, and one that likewise may be applied to engines having other oiling systems, but which prove hard to cure of the smoking habit, is to insert baffle plates at the base of the cylinders. Perhaps the simplest way of doing this is to cut sheet iron or steel gaskets to fit the bases of the cylinder castings, but instead of cutting

the slots are alternative methods of increasing the supply to the cylinders under such circumstances. The latter is preferable, as increasing the depth of the oil in the case frequently causes a loss through the end crank shaft bearings.

The so-called "pump-over" system, which is very commonly used at the present time in new motors, may be merely a modified splash system in which the oil from the crank pits is circulated repeatedly through the bearings, or it may be an independent system, of the sort roughly indicated by Fig. 5, in which the cranks never dip in oil, but receive their supply through passages drilled in the shaft. With such a system smoking will occur if the screens which separate the main crank case from the reservoir, or "sump," in the base, become clogged so that oil accumulates in the case proper and begins to splash.

Too much oil in the system will bring about the same result, as may excessive feeding from the pump, which is to say, a faulty adjustment of the regulating mechanism, whether it consist of a by-pass or a device for altering the stroke of the pump. Rarely, it may happen that a very loose

crank shaft bearing may permit an excess of oil to escape at the end and flow out onto the adjoining crank web, from which it will be thrown off by centrifugal force, thus causing one cylinder to smoke.

Another form of modified splash is one that has been developed for the Knight engines and which has been adopted to a limited extent for poppet valve motors as well. In this system, which is illustrated in Fig. 6, the double-bottomed form of crank case is used, the upper and lower sections being separated either by a solid dam with a drainage well at one end, or by a screen, as indicated in the sketch. In either case the cranks, instead of dipping directly in the oil, wipe over small troughs, which are indicated by blackened crescents

so much heat in the cylinders that the oil literally will be burned from the wall surfaces. The smoking of a hot engine, like that of one which is receiving too rich a mixture, or the steaming of one that is having a stream of water pumped into its cylinders, however, is a wholesome indication, rather than a menace. In no case would the cause be accepted as an excuse for a smoky exhaust, in all probability, but the symptom is useful, because if observed promptly it may permit the cause to be remedied before material harm is done.

To stop a motor smoking, then:

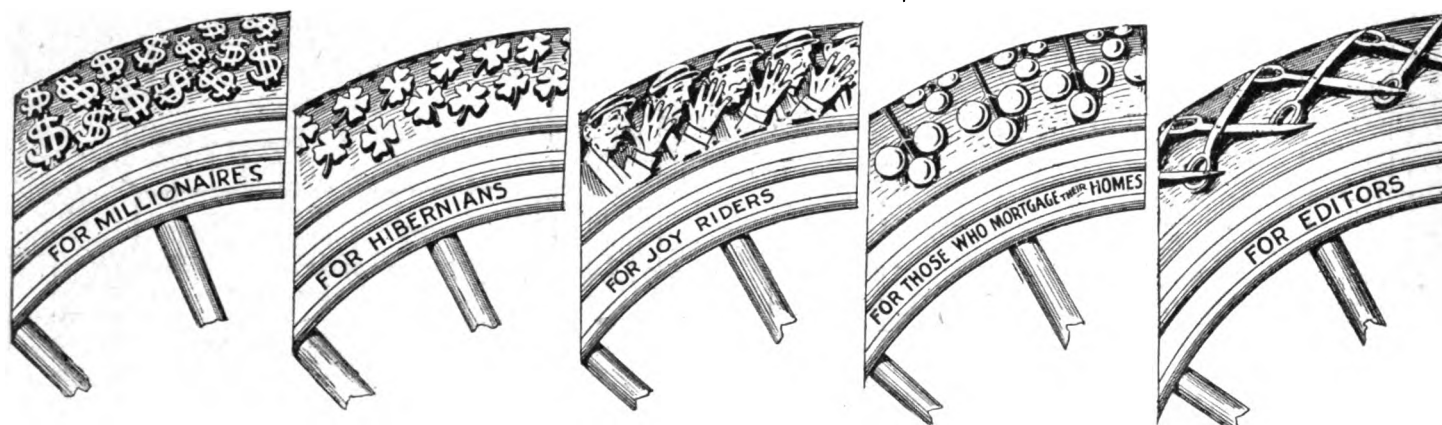
First, study the lubricating system and make sure that it is in order and that it is adjusted as the maker intended it to be adjusted when it left his shops, particu-

least, it is well to examine them occasionally to make sure that they have not run dry. This is particularly so after a trip of any considerable duration in hilly country, as cases have been known where the heat generated in the brakes has thinned down the grease sufficiently to cause it to ooze out, leaving the bearings dry to all intents and purposes.

To Assist Starting "On the Spark."

When starting an engine "on the spark," it is almost as important to see that the spark control lever is in the retard position as it is when starting with the crank. Unless the spark is retarded the motor is likely to start backward, and it may be difficult to start the engine in the right

DESIGNS THAT ADD MEANING TO NON-SKID TREADS.



THE INDIA RUBBER WORLD'S IDEA OF DISTINCTIVE NON-SKID TREADS.

in the picture, and into which dip little scoops that project from the connecting rod bearing caps. Through the scoops and suitable oil ways in the bearings, the oil is distributed to the bearings and sometimes, also, through internal passages in the shaft to the main bearings as well. Through interconnection with the throttle the position of the troughs is altered* to correspond with the speed of the engine. Obviously the system requires constant and proper adjustment in order to fulfil its purpose. Otherwise the cylinders will be either starved or flooded.

But one likely cause of smoking remains, that is to say, that which is due to the leakage of the pistons and rings in an old and much worn engine. For this cause sometimes the adoption of a thicker grade of oil than customary can be employed satisfactorily, although the experiment of changing oil always is one fraught with more or less uncertainty. Incidentally, a change, knowingly or otherwise, to a new and poorer brand of oil occasionally may result in a certain amount of smoking in an engine that otherwise is blameless in the matter.

Rarely, too, cooling trouble may cause

larly with respect to the level in the crank case.

Second, make sure that a suitable grade of oil is being used, irrespective of what is billed, or of the brand mark on the can—substitution may be the cause of the difficulty.

Third, seek to modify the distributive system in such a way as to reduce the amount of oil that reaches the cylinder walls, but be sure that in doing so all cylinders are treated alike and that the oiling is not skimmed. Before making any alterations of a permanent nature, however, consult the manufacturer; his advice will be helpful and will tend to economy.

If the chauffeur insists that a little smoke is necessary to insure proper lubrication, it is a mark of ignorance. Smoking indicates excessive lubrication in almost every case. Adjustment of the oiling system may be checked by the smoke symptom, but it always should stop just short of the point where a cloud will hang behind the exhaust pipe.

The Lubrication of Wheel Bearings.

Though wheel bearings generally retain their packing of grease for a season at

direction afterward without a great amount of "spinning" to get fresh charges of gas into the cylinders.

One Way of Silencing Noisy Gears.

Not infrequently noisy change gear sets which are fitted with large, thin covers may be silenced to a considerable extent by placing felt or leather packing between the cover and the gear box. The reason for this is that the felt or leather tends to deaden the sounding board effect of both the cover and the gear box proper, though the cover itself generally is the greatest offender in this respect. It sometimes is possible to obtain the same effect by increasing or decreasing the amount of lubricant in the gear box.

When Throttling Causes Irregular Firing.

Inability to throttle down a motor very low and still have it fire regularly is not always caused by faulty carburetter adjustment. Very often the trouble may be traced to the ignition in that the spark plug gaps are too small. Increasing the size of the gaps almost to one-sixteenth of an inch has been known to be an effective remedy for the trouble.

EIGHT WHEELS FOR ONE MOTOR CAR

Indiana Inventor Puts Idea into Practice—
How it Differs from Present Forms
and Promotes Comfort.

On the principle that three little bumps are easier to cushion than one big one, builders of sleeping coaches have developed what is looked upon as the acme of railway comfort, and on the same general principle, M. O. Reeves, of Columbus, Ind., has constructed a multi-wheeled automobile, to which he has applied the appropriate and abbreviated designation of "Octo-auto." Instead of twelve wheels, such as



REEVES "OCTOAUTO" EIGHT-WHEELED TOURING CAR.

are used on Pullman coaches, however, the Octoauto, as its name implies, is equipped with eight, thereby introducing a very pretty mechanical principle. Reeves, himself, is president of the Peoples Savings & Trust Co., of Columbus, and first vice-president of the Reeves Pulley Co., which has been known in the industry as the producer of variable speed appliances and mill supplies. Having built one of the machines for his own use and tested it over some 2,500 miles, he now declares his willingness to license automobile manufacturers to employ his suspension and mounting system, incidentally letting it be known that the eight-wheeled car will cost about one-third more to produce than the same grade of four-wheeled machine.

The mechanical principle referred to is that of the lever of the second class and having equal arms. That is to say, a sort of "bogie" construction is employed, each end of the standard touring chassis being supported by the center of a four-wheeled truck. The result is that when one pair of wheels is raised by an obstruction in the road, the second pair remaining on the level, the center of the truck will be elevated but half the distance. Also when one pair of wheels is ascending the far side of a "chuck" hole just as the other pair is descending into it, the center of the truck will be subject to little or no vertical disturbance, the fore-carriage—to employ a

descriptive term—merely rocking from end to end. By applying this principle to both ends of the chassis, it is evident that the amplitude of the vertical motion resulting from road inequalities must be practically cut in half.

Further carrying out the idea of absorbing vibration and shock from the principal parts of the car, the regular spring suspension is retained and to it is added a supplementary spring support which serves to preserve the relation between each pair of axles and also to carry the weight of the chassis. The general appearance of the machine, which is of modified Overland construction, is shown by the accompanying picture. The rear axle is unchanged and retains the same relative position. The

frame is lengthened 19 inches at a point just in front of the rear springs, while replacing the front and rear axles on the original springs are a pair of transverse shafts on the ends of which are boxes which provide attachment for the pivotal mountings of four 38-inch leaf springs, one at each end of each cross-shaft. The four axles are clipped to the ends of these springs.

The four front wheels and the pair in the extreme rear are used for steering. The two front axles and the one in the extreme rear, therefore, are alike; that is to say, they are similar in construction to the standard form of pivoted front axle. The steering mechanism is interconnected between the axles by means of a longitudinal rocker shaft running under the chassis, from which suitable arms direct the movement of the cross tie-rods. The cross rods of the two front axles are in the rear while that of the extreme rear axle is in front. This has the effect of causing the six steering wheels to deflect to an approximately correct angle when the steering hand wheel is turned. As the single driving axle retains its original position, no alteration in the transmission is required while practically the entire car, save for the axles; frame, mud-guards and steering gear, is of standard form.

Besides the advantages derived from the method of mounting the chassis and also

from the introduction of four additional springs, further easy-riding properties are derived from the fact that the load on each of the tires is reduced to at least half that which would be required under ordinary circumstances. On this account the tire wear is reduced very largely, while it is possible to reduce the air pressure in the tires to 50 pounds per square inch. The actual expense of tire upkeep therefore is held to be particularly small, notwithstanding the doubling of the first cost of the equipment.

Chalmers Produces Long Stroke Model.

Under the slightly ambiguous designation "Thirty-six," the Chalmers Motor Co., of Detroit, Mich., has adopted a new four-cylinder model, intermediate in size and price between its two other products, and which evidently is destined to be the leader of its future line. In addition to a long-stroke motor, which has cylinder dimensions of $4\frac{1}{4} \times 5\frac{1}{4}$ inches, and a four-speed change gear, it is distinguished by a pneumatic self-starter of the type that operates with gas compressed through a check-valve on one of the cylinders and distributed through a special timing valve. It is listed to sell for \$1,800 with the following liberal equipment: dual ignition, demountable rims, a full set of oil and gas lamps with Prest-O-Lite tank, horn, pump and tools. The front doors of the enclosed bodies will be ventilated. Top and windshields list as extras. Both the "30" and "40" models, priced at \$1,500 and \$2,750, respectively, will be continued, but with a complete equipment which will include tops and windshields.

Abbott Adds New Model; Reduces Old.

Besides announcing a new seven-passenger touring model to sell at \$1,800, the Abbott Motor Co., of Detroit, Mich., has declared a reduction in the price of its current model 30 from \$1,500 to \$1,350, including all equipment except top and windshield. As at present, electric lights and a 100 ampere-hour storage battery are a part of the standard outfit. The new model 44, which will sell for \$1,800, has a $4\frac{1}{2} \times 5\frac{1}{2}$ four-cylinder motor, dual ignition, three-speed change gear, independent clutch and brake control and 120-inch wheel base. Both models will be made in a variety of body styles with closed-fronts and also in limousine and coupe forms as in previous years.

Chicago Dealers to Hold "Open House."

The Chicago Automobile Dealers' Association has voted to hold what is termed a "Fall show," but which really will be made in the nature of "open house." The idea is for the various dealers to decorate their stores and otherwise make one week in October a gala one, during which the 1912 models may be exploited under favorable auspices.

GARAGEMAN AND THE CHAUFFEUR

He Details Peculiarity of his Position Between Owner and Driver—Also Some Grafting Chauffeurs' Tricks.

"Have you noticed what a vast difference there is in chauffeurs?" asked the manager of an uptown garage. "If you haven't, spend a few days with me, and I will show you some traits of human nature which you would not believe existed. As a class chauffeurs are a poor lot, and many who obtain drivers' licenses should not be permitted to sit in a gentleman's car, much less drive it. I do not mean to say there are not some excellent men driving automobiles. They, however, are in a class by themselves. The distinction I have in mind is between the chauffeur who looks after the interest of his employer and the one who appears to feel that the owner of the automobile is under obligations to him for accepting the position. These men, as a rule, can drive, and so long as they 'get away' with everything else they are satisfied.

"The sooner the automobile world is rid of them the better will it be for every one concerned. They ruin good customers by contracting unnecessary bills, in order to make a commission. They are looking for discounts or tips all the time and demand a commission on everything the employer has to purchase for the up-keep of the car, regardless of the fact that they are paid to take care of the car, at so much a week, or month, the same as every other man who works for a living. Some of the tricks they employ in order to get an extra dollar or two would surprise you. Why, I have known some of them to intentionally put the car out of commission in order to charge up repair bills.

"Speaking in this strain will not make me popular with many automobile drivers, but there are some things owners should know, and I wish some of them knew their chauffeurs as I know them. In this garage, for instance, there are drivers who would not accept a commission, even if it were offered. These men want the best of everything and are always 'on the job' for the interest of the employer. The result is, the owner is never disappointed with his automobile when he wants to use it. Several cars here have gone more than 50,000 miles, according to the odometer, yet the owners never have been required to pay large repair bills. The drivers understand mechanics and can make the necessary repairs to keep the car in first class condition. These men, as a rule, are appreciated, for most owners know when they are receiving good service. The other class of driver generally expects the garage owner to do everything and send the owner a bill in order that he may get a few extra dollars each month. It is

catering to the latter class that has caused a number of garages to close up. Such things are bound to come out in the end, but the owners do not always tell why they quit his establishment.

"It has been generally supposed that the law making joy-riders guilty of grand larceny for taking an automobile from the garage without permission of the owner has broken up the habit. But take it from me, it is a false impression. They are still at it. And, of course, such night outings cost money, apart from the wear and tear on motors and the expense for gasoline and oil consumed. Does the chauffeur pay for any of the supplies? Not much. He charges them to the owner, who, although he does not realize it, provides the money needed for entertaining at road houses which cater to chauffeurs and their 'joy-riding' friends. One such place within the city limits has its dance hall decorated with old automobile license numbers, obtained from chauffeurs, as proof of its popularity. The average driver seldom receives more than \$25 a week. This sum is not sufficient frequently for one trip, therefore he must get money in another way. He never hesitates a moment, whether it is selling extra tires and tubes to some second hand dealer and ordering new ones for his employer or disposing of other necessary accessories.

"I have known chauffeurs to sell the gasoline out of the supply tank on the car and return to the garage to have the tank filled, so that it can be charged to the employer. I know one man—he does not store here—who has an arrangement with his employer by which he pays cash for gasoline. In order to secure this arrangement he guaranteed to get the fluid at 18 cents a gallon. The standard price for good gasoline is 20 cents, and to keep up his end of the agreement this chauffeur resorts to all kinds of tricks. For a long time he succeeded in obtaining what he wanted from garage employees, but when the management got wise, the employee was discharged. However, it is an easy matter for this fellow to get gasoline from another chauffeur by syphoning it from one tank to another, even on the street. Frequently he has a friend get five or ten gallons charged up, but the gasoline does not go into the friend's car.

"Some people imagine that the garage manager or owner can stop this sort of thing. But it seems easier than is the case. The manager or owner is powerless, because no matter how observant he is or what policy he adopts to end such abuses, it comes back on him. In the first place, few automobile owners will take a chauffeur recommended by a garage. They generally get them through the automobile company from whom the car is bought, and the company will recommend only a man who understands their car and who is considered a careful driver. It knows nothing whatsoever about the man's habits or his honesty. The garage owner is the one who

knows, however, and frequently it is a surprise to him—how some of the chauffeurs hold their jobs. They do practically nothing except drive under the owner's orders, and if the slightest thing goes wrong it is blamed on the garage. I have known joy-riders who have met with accidents on the road, such as breaking a lamp or axle, and the next day tell their employer that the accident occurred in the garage and that the garage will make good. Then they go to the garageman and want him to pay the bill and charge it to the owner's account as so much gasoline supplied. Most owners never look into the cost of gasoline, and many sins are committed in its name.

"By these little things you can see a garageman's life is not a bed of roses. He stands between both owner and driver and is therefore the one blamed by both sides. If he refuses to assist the chauffeur it is an easy matter for the latter to set his employer against the garage and cause the car to be taken to another place. The chauffeur receives orders direct from his employer, so the garageman only knows what the chauffeur says, and therefore has no direct control. An owner may order the car for two o'clock in the afternoon, and the chauffeur may take it from the garage at noon, and by the time it reaches the owner's house it may be more or less dirty, and the garage is blamed for carelessness. When the first of the following month comes the car is taken away, and the garageman has no redress whatsoever. This is the sort of whiplash some of these chauffeurs hold. They know it and impose on both the garageman and their employer. Of course, I have spoken chiefly of the grafting chauffeur, of which there are so many. But there are many chauffeurs who would not stoop to such tricks. This class is particular, and if, through some oversight a thing or two about the automobile is not just as it should be, they themselves will perform the finishing touches and make no complaint. These men are the kind we like to have around us.

"Some owners are so uncertain as to the time they will use their cars that they compel their drivers to hang around the garage all day awaiting their call. For this class a recreation room must be provided at the garage. How do these men put in the day? Reading soon grows tiresome, and of course they turn to games of chance—craps, poker or some other gambling device. In quite a few garages, where a number of chauffeurs congregate, I understand high play is frequently indulged in, for which the automobile owner is made to pay, without knowing it. Here we have only a few of the gambling kind, but in one place with which I was connected quite a game was run by an outside man. I was not the manager, and therefore could not stop it. But if the police department would conduct investigations along this line, 'clubs' would not be the only places raided."

NEW TRUCK FROM CONNECTICUT

It is of Standard Design but Embodies Some Special Features—Strong Claims Made for Demountability.

Embodying a number of useful features which are calculated to prevent undue sacrifice of working time in the making of adjustments and repairs to vital parts, the Murray truck, which is made in three and five ton sizes, has just been launched in Norwalk, Conn., where it is produced by C. L. Barker, otherwise a builder of gas engines, valves and fittings. The general design of the vehicle is that which has been adopted by a

wheel housing and running in an oil bath. So smooth is the engaging action that it is claimed the truck can be started on high gear under load without jolt or jar. The change gear mechanism, which is of the selective sliding pinion type, is unusual to a degree that both driving and lay shafts are mounted in a single casing, while by the employment of double driving bevels on the counter shaft, direct connection is obtained on both second and third speeds. As both low and reserve speeds are obtained by the action of a single pinion on the lay shaft, it follows that the mechanism is exceedingly simple.

Another rather unusual feature is the use of ball bearing mountings for all four wheels, the front wheel supports being of

NO TIRE FAMINE IS IN SIGHT

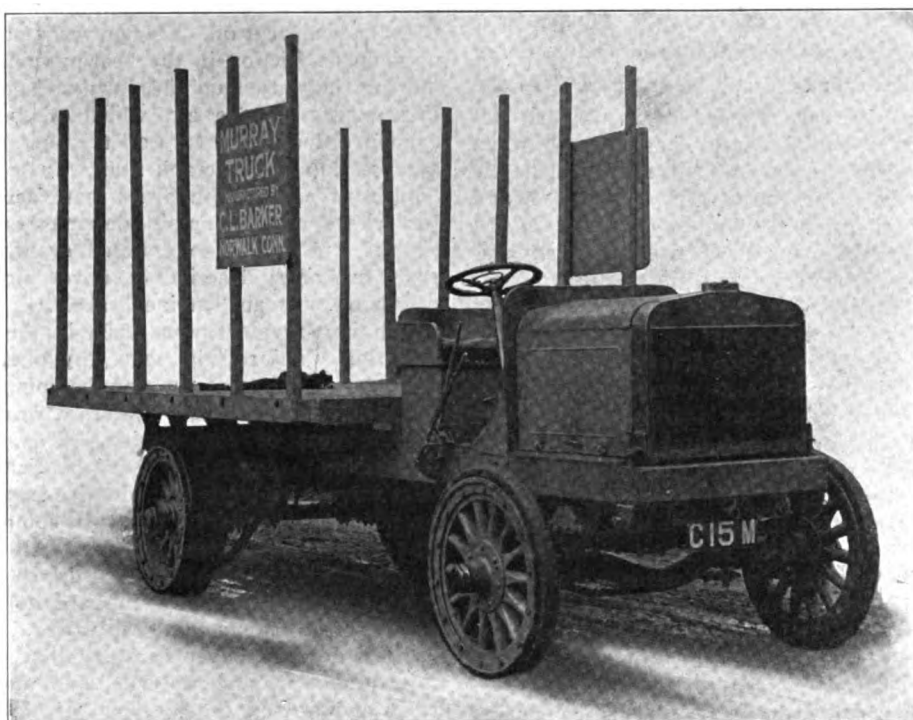
Merely a Not Unusual Shortage of Popular Sizes—And the Visible Supply of Rubber is Enormous.

Apart from the usual summer stress in the tire market it has been reported that the present season is witnessing a record-breaking shortage in the popular sizes. Not only are various agencies and branches shy of the stocks that are most in demand, but factories are represented as running anywhere from full time to three shifts a day in an effort to supply the deficiency. The situation is variously ascribed to the weather, highway conditions, the increased use of motor cars, the growing use of demountable rims, commercial vehicle developments and the consequent increase in demand for solid tires; to the confusion resulting from the increased requirement for odd sizes and to a lack of foresight on the part of manufacturers in making their plans for the present manufacturing season last fall.

It is not claimed that the shortage is due to market stimulation resulting from prices lowered in sympathy with the present cost of crude rubber. Tire prices are lower than last year—as much as 25 per cent. lower in some instances—but rubber, despite the buoyant tendency of the moment, is 55 per cent. cheaper than it was one year ago. The actual fact of a dry spring and early summer, which brought on an early touring season, and also dried up roads and laid bare gravel surfaces in many instances, affords the most probable explanation for the scarcity when taken in conjunction with the natural growth of the business. While there is a scarcity, which in some cases is said to be serious, there are no indications that anything like a tire famine is threatened.

In respect to the crude rubber market, which has afforded a remarkable example of elasticity during the past three years, the situation once more is becoming interesting. After a fairly uniform decline since the first of last March, when up-river fine Para was quoted in New York at \$1.68 a pound, a 16-point rise, occurred during consecutive five days, bringing the price up from .98 on Friday of last week to 1.14 on Tuesday. The jump is ascribed to circumstantial reports of the long talked of valorization plan on the part of Brazilian interests, which it is said has now gained the sanction of the government of Para and is about to go into effect. Whether the reports are correct or whether, as has been intimated by those who claim they lack authentication, they are inspired by investors in Ceylon grades, which rapidly are assuming competitive importance, is difficult to determine.

For many months rubber gatherers and



THE MURRAY TRUCK—A RECENT CONNECTICUT PRODUCT.

number of successful producers of heavy commercial vehicles. The engine is carried under a hood in front of the driver's seat, the gearset is mounted in the waist of the chassis, and final drive is accomplished by means of double side chains, the specifications providing that the latter shall be encased and run therefore under conditions suitable to long life and efficient action.

Special claim is made for the demountability of the various parts. The complete driving mechanism, including the clutch, can be dismantled and replaced in no more than ten minutes. The radiator and steering gear likewise are so arranged that they can be removed in an exceedingly short time.

The motor employed is of the four-cylinder, four-cycle, vertical pattern, and develops 50-55 horsepower at 1,000 revolutions per minute. The master clutch is of the multiple disk type, encased in the fly

the familiar cup and cone type, so designed for the purpose of sustaining the heavy end thrusts to which the wheels are subjected. Special provision also is made in the steering gear to prevent the effects of wear from interfering with the control of the machine, what is described as a braking arrangement serving to effect the desired purpose. As the picture shows, the driver's position is on the right hand side of the vehicle, the control levers being arranged in the usual manner.

To Make Berlin a Horseless City.

In order to reduce the number of horse-cabs in Berlin, the chief of police of that city has offered to supply proprietors with one taxicab license for every 10 horse-drawn vehicles which they withdraw from service. According to a foreign publication, no more licenses for horse-drawn cabs are to be issued.

brokers in the Amazon territory have been reported as plotting for control of the market. Falling prices are claimed to have reduced the producers to desperate straights. In consequence they have formulated an ambitious plan involving a heavy government subsidy based on a \$30,000,000 loan and the exaction of a surtax of 5.8 cents a pound, the establishment of banks for the purposes of advancing funds on lands and crops, and finally the regulation of prices by means of the great power thus amassed.

Anticipating the fruition of such a plan, it is said that certain interests have been holding back considerable supplies, and have been caught by the falling market. Despite repeated assertions that the government of Para has endorsed the scheme, this is still denied in some quarters. Those who are anxious to prevent alarm also are pointing to the fact that the world's visible supply "as of June 30" is enormous. Including fine, medium, coarse and caycho grades, as well as some 2,881 tons of Liverpool syndicate stocks the total estimate is 10,950 tons. The corresponding estimate for 1910 was only about 3,457 tons, as compared with 2,319 tons in 1909 and 4,682 tons in 1908.

Effect of Large Wheels on Tires.

As regards the advisability of fitting larger tires to a car it should be remembered that there are several factors bearing directly on tire depreciation. One of them is the abrasion of the rubber on the road surface, another is the rotting of the fabric due to the ingress of water through cuts, and another, and probably the most important, is the effect of fatigue of the fabric caused by excessive or frequent bending of the walls to a curvature which strains the fabric. While increasing the size of wheels, in order to allow of larger tires being fitted, undoubtedly increases their weight, and this apparently tends to increase fatigue, the increased size operates to allow of a larger vertical movement of the tire without curving the walls to an extent which is objectionable and so relieves the stress. The larger tire area in contact with the ground also decreases the pressure per square inch at that particular point.

To Make Nuts More Accessible.

In overhauling a car there always is likely to be a certain number of bolts the nuts of which can be made much more accessible by simply placing the head of the bolt where the nut was before. Of course care must be taken not to invert any bolts that have a better reason than appearance for being the other side up, and it is to be remembered that a bolt dropping out may be infinitely worse than a nut dropping off. But with cotter pinned nuts there is little occasion for working a wrench in frame channels and other places, when the nut might as well be outside.

BRAKES FOR MOUNTAIN REGIONS

Their Cooling Ratio Chief Consideration, Declares an Engineer—How a Swiss Maker Meets the Requirements.

Commenting on the inadequacy of the brakes as ordinarily applied to English cars, none of which, he states, are so designed as to permit of a steady continuous descent of one mile on a grade of 10 per cent., at a speed exceeding fifteen miles an hour, a British engineer has advanced the opinion that the size of the brakes should be determined by the rate at which they can cool and not by considerations of mechanical strength and the desire to secure sufficient wearing surface and smooth action.

"Brakes are intended to dissipate energy in the form of heat," he explains. "In the case of breaks applied during a long descent potential energy has to be thrown away; in the case of a traffic stop kinetic energy is in process of being wasted, and in both cases the brakes get hot. In the latter, the intervals between the applications of the brake are so large that no overheating is to be feared; a car which may have to descend a pass on tour, however, is to be considered very differently.

"This may serve as a warning," he adds, "to those who start touring with cars in first class order, with brakes, as they think, tested, and found by a few applications at starting to be in good condition, that they must even at the present day continue to follow the advice so often given by the early motorists, and nowadays rarely attended to, of starting on such a hill with the gear lever in a low speed notch and the clutch in, the spark being cut off and a full air admission given to the air inlet pipe."

Continuing, he says: "This conclusion may be somewhat unexpected, since the natural man expects his car to be equipped with brakes fit for an emergency, but it is a question of economics. From the maker's point of view, which is the one we must adopt if we are to profit by the cheapness arising from buying a standard article manufactured 'repetitively,' there are some hundreds of thousands of car miles run on average roads to every one continuous mile on such a gradient as has been referred to. Therefore the maker rightly judges it worth while to adopt a type of brake which is nearly always adequate in lieu of the inordinate size of brakes required in the exceptional case.

"He would, in fact," continues the engineer, "require to give to the air cooled brakes a surface not 100 or 200 per cent., but some 10 or 12 times greater than he does, and the ordinary buyer simply will not pay for this protection in the hypothetical case of his wishing to scale the Alps. There remains the alternative of water cooling the brakes. This plan is quite suc-

cessful when in use, but it has the drawback that it depends on the driver's memory. Originally it was so contrived that water was turned upon the brake bands whenever the brake was applied by the mere depressing of the pedal, but this was found to deplete any reasonable tank too quickly for any long tour if the flow was sufficiently great for such a road as is here premised. Thus it is, that to expend the energy in friction, etc., in driving round the engine by the car's weight, is nevertheless a simple and practical solution of the difficulty."

The retarding effect of an engine which nominally yields 40 horsepower on the brake is due to the fact that it will absorb about 15 horsepower, and sometimes more, if driven at full speed with the throttle fully open (so as to get full compression), but with the spark cut off. This power is partly used up as friction in the bearings and in moving the pistons up and down and partly in compressing the air, which when re-expanded does not return all the energy of compression to the crank shaft.

Citing the case of a Swiss manufacturer for whose cars mountain descents are a normal and not an exceptional event, the same authority describes a novel modification of such an "engine brake."

"An improvement was made in the retardation obtained," he says, "by opening the exhaust valves as soon as the compression was complete, and, therefore wasting all the heat of compression. The only further improvement was that by which the inlet valves also were opened twice as often as normally, so as to get two compressions per cycle instead of one. All this was and is accomplished by the driver slipping the cam shaft slightly forward, so that a new set of cams actuate the valves.

"It is for the buyer to know that such things as this, and water cooled brakes, exist and are on the market," he says in conclusion, "and then he must decide whether the amount of mountaineering he contemplates warrants a preference for cars so equipped."

How to Preserve Chamois Skins.

After chamois skins used for cleaning and polishing have been in service for some time they become dirty and grit which will mar paint work will adhere to them. They may be returned almost to their original condition, however, though the operation necessarily is lengthy. They first should be brushed with a stiff brush to remove all adhering grit, after which they should be covered with soft soap and allowed to remain several hours in a bath of hot water to which a little common washing soda has been added. Next, they should be rubbed until perfectly soft and clean, when they should be rinsed in a weak solution of soda and soft soap in hot water and hung up to dry. Chamois skins should not be rinsed in pure water as it has a tendency to harden them.

Springs; Their Variety and the Reasons Therefor

The luxurious springing of a particular automobile long may have been the source of unmitigated joy to the owner. Eulogizing on the merits of the car, his enthusiastic phraseology probably embraced such gems of rhetoric as "smooth as silk," "rides like a hammock" and other equally superlative utterances. And effects which justify such expressions are by no means uncommon.

Generally speaking, and contrasting present productions with those of even a few years ago, when the arts of spring making and suspension were thought to have

posed, as in many cases they tend to increase vibration. Therefore in seeking the bodily comfort possible only by the use of properly designed and proportioned springs, the owner also insures a reduction of maintenance cost and increased longevity of his property.

Though automobiles are not intended for continuous high speed, unless they are built expressly for racing purposes, they still may be forced to "make time" and they therefore involve spring conditions which are found in neither horse-drawn carriages nor railroad cars, the former of which must

of cars. As their name implies, leaf springs are composed of a number of steel leaves of different lengths, arranged according to their lengths one on the other. Though it may not be generally known, the leaves decrease in a regular scale of lengths. Good engineering practice allows that "the ends of the several leaves shall touch the sides of a triangle whose base is drawn between the extremities of the longest leaf and whose apex is at or about the theoretical center point of the spring's movement." Which is to say that with a well-proportioned spring in its normal position, the

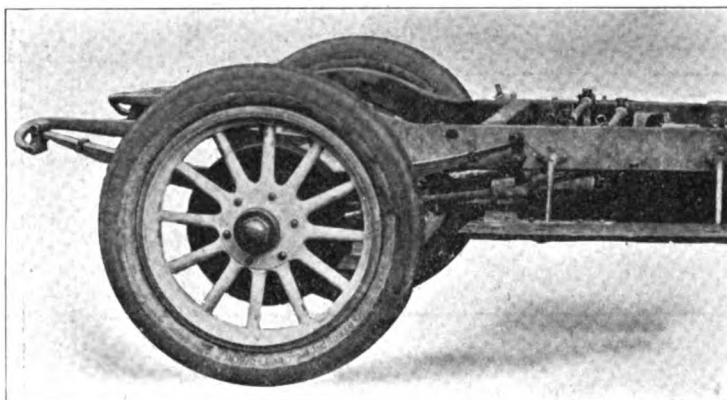


FIG. 1—POPE-HARTFORD SEMI-ELLIPTIC SPRINGS.

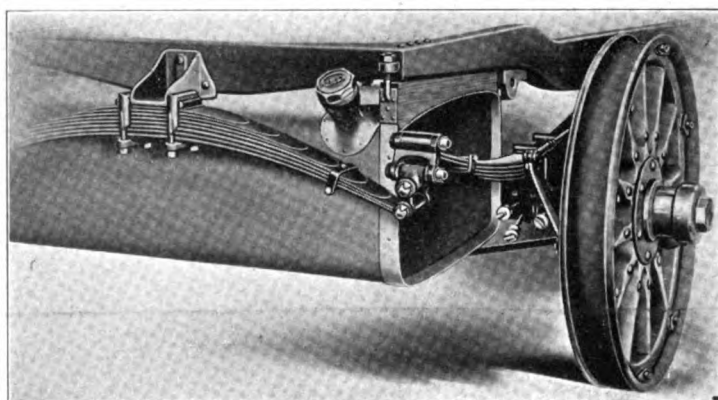


FIG. 2—THREE-QUARTER PLATFORM SPRING SUSPENSION.

reached perfection, though it often required that a person be a genuine martyr to sit through a ride of other than very short duration, all cars in some degree now ride more comfortably; in fact, the difference in the riding qualities of ancient and modern cars is more marked than is the difference between existing models of present day manufacturers. Which is to say that whereas all the early cars, with few exceptions, were "nerve wreckers," all modern cars ride easily; they differ, it is true, but none may be said to ride really hard.

Probably the first answer to the question "Why do cars ride easily?" appears to be, "For the comfort of the passengers," which is true to a certain extent. Unless cars rode easily they would be in comparatively small demand, at least for pleasure purposes. But there is another reason which is of equal if not of greater importance, namely, the effect of properly proportioned springs on the mechanism of the car itself. It readily may be appreciated that without springs the vibration of the engine and the racking the car would be subject to in passing over ordinary roads, speedily would make it a candidate for the junk heap. Poorly designed springs, on the other hand, serve little better pur-

provide for maximum road roughness and minimum speed and the latter for maximum speed and minimum road roughness. Automobile springs, on the other hand, must provide for both these conditions and at the same time be so designed as to permit of maximum speed and maximum road roughness.

Principally, the owner concerns himself merely with the fact that his springs do provide for such conditions; undoubtedly a large percentage of motorists would be nonplussed if asked how springs are composed, the names of the parts and of the types of springs, or almost any number of other questions, which, while simple, seldom are thought of. Briefly, springs are of two general types, coil and leaf. Though the use of coil springs generally is confined to light vehicles, one of the most noticeable examples of their use being found on Brush cars, at least one manufacturer, the Lansden Co., Newark, N. J., has used them to advantage on heavy vehicles, the Lansden two-ton truck, which is an electric, being so mounted.

Generally, however, automobiles both for pleasure and commercial purposes are carried on leaf springs, though coil springs often are used as auxiliaries on both types

end of each separate leaf would be equidistant from that of the one immediately above it and of the one immediately below it.

As constructed, the leaves generally form superposed arcs of a number of concentric circles, the curvature, or camber, of the leaves representing the difference between the spring under static and maximum load. Under maximum load, the leaves would be nearly straightened out under stress; beyond that point, as they are bent downward, the point of ultimate strength, involving loss of elasticity and breakage, rapidly is approached. It is absolutely essential that the camber of each of the leaves be the same before the spring is assembled, so that all the leaves shall have the same strength. Although the strength of the spring to resist bending, as a whole, would be practically the same if there was a slight difference in camber in the leaves, the strength of each individual leaf would not be the same and they would be likely to fracture on occasion.

To prevent the leaves from moving longitudinally, some springs are bolted through or "nibbed" at the center; others are maintained in position longitudinally by means of small protruberances made in-

tegral with the leaves and fitting into indentations in the leaves above or below them, while others are fitted with small pins which register in slots cut through the leaves. This latter method seldom is used, however, owing to the fact that it weakens the leaves to a certain extent. Lateral movement of the leaves is prevented by "kitten-ears" or small tabs on the sides of the leaves which are bent down to embrace the next lower leaf.

Springs always are rigidly attached at their centers, for which purpose spring clips are used. Owing to the fact that springs are elongated to a certain extent when flattened under load, however, they cannot be rigidly fastened at the ends where they are attached to the chassis frame. That is to say, they cannot be rigidly attached at

which, in addition to producing a condition which is annoying, contributes little to the protection of the mechanism. A prominent authority on the subject has stated that as a general rule, the best spring is one "that moves quickly when idle or worked on, and slowly when working." Which is to say, a spring should absorb jars by friction between its leaves rather than by transforming them into a series of oscillations.

In the designing of springs there are three important features which must be reckoned with, namely, the static load, the maximum load and the ultimate load, which latter is the greatest possible load which can be carried with good spring action; it represents practically the limit of endurance of the spring. The static load

name implies, half an ellipse, and is arranged to be attached to the axle at its center and to the chassis frame at its extremities. In general practice, semi-elliptic springs are used for the front support, though in the Pope-Hartford construction, illustrated in Fig. 1, and also in the Alco, Cartercar, Columbia and Apperson and in a number of others, semi-elliptic springs are used both front and rear with excellent results.

Full elliptic springs consist of two semi-elliptic springs attached at their extremities so as to form an ellipse. This arrangement is shown on the Marmon chassis, illustrated in Fig. 3, and it also is used on such other well known cars as Buicks and Franklins, the attachment of the springs on the latter being unique in that the axle is

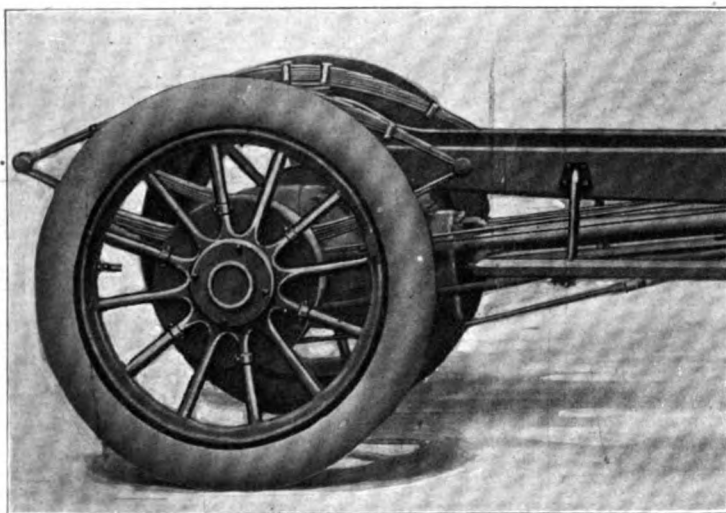


FIG. 3—MARMON FULL ELLIPTIC SPRINGS.

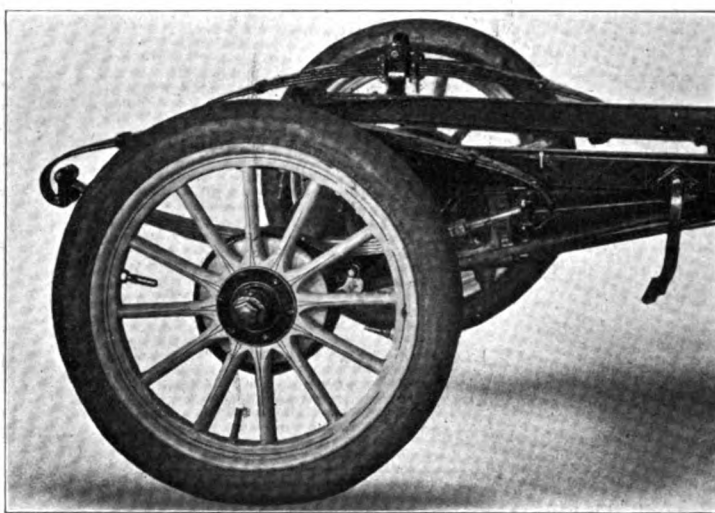


FIG. 4—FLANDERS SCROLL FULL ELLIPTIC SPRINGS.

both ends; when the rear springs are made to perform the functions of radius or torsion rods, they must be rigidly attached at the front ends, though the rear ends always are flexibly connected by means of shackles, which permit of a certain amount of movement. When some separate means, other than the springs, is used as a radius member or members, the rear springs then require to be shackled at both ends, as the position of the rear axle relative to the chassis frame is altered slightly when the springs are compressed. Front springs cannot be shackled at both ends; they must be securely anchored at one end, usually the front, because one of their offices is to maintain the front axle in position.

To be thoroughly serviceable, theoretically, springs should possess two essential qualities in due proportion, namely, resistance and resilience, but that few are absolutely perfect in this respect is evidenced by the addition of such devices as shock absorbers and auxiliary springs. It is the object of designers to obtain springs which shall give sufficiently to absorb the jar of travel but which shall not be so resilient as to rebound in a series of oscillations,

comprises the dead weight which is carried above the springs when at rest, and the maximum load is the proportionately increased weight of the static load when the vehicle is running at its greatest speed over the roughest negotiable road.

Considering the functions of the springs, it is obvious that they must be calculated to retain their elasticity, or have an ultimate strength far beyond the maximum load, and in this respect it is worthy of remark that in railroad practice it is customary to calculate the springs for an ultimate strength of twice the maximum load. One of the difficulties of the designer is in obtaining perfection of spring action when the weight of the vehicle is in excess of the weight of passengers carried. There are no accurate data in reference to this problem, and the adoption of the proper springs usually is the result of actual tests.

There are five arrangements of leaf springs as used on the better known cars, as follows: Half-elliptic, elliptic, scroll elliptic, three-quarter elliptic, three-quarter scroll elliptic and three-quarter platform, otherwise known as three point support. The half- or semi-elliptic spring is, as its

attached to the upper side of the lower member of the spring and thus comes between the two members, the center of gravity of the car thereby being kept as low as is possible with the use of full elliptic springs. The Flanders scroll elliptic, illustrated in Fig. 4, is practically the same as the elliptic arrangement, except that the ends of the longest leaves of the upper member are formed into "scrolls" and attached to the lower member by means of shackles.

The so-called three-quarter platform arrangement shown in Fig. 5 is used comparatively little, though it may be found on American, Chadwick, Croxton-Keeton and Firestone-Columbus cars.

Each of these arrangements has its advantages, or disadvantages, according to whether it is used or not, though owing to present-day methods of manufacture and mounting, there really is little difference in the ultimate results obtained by the use of either.

The three-quarter elliptic arrangement, either plain, or scroll as shown on the Stearns chassis illustrated in Fig. 5, is used almost as extensively as all the others

together; as a matter of fact, the increase in the number of cars exhibited at the 1911 New York show on which it was seen, over those at the 1910 show, was in the neighborhood of 40 per cent., which augurs well for the popularity of the system. It is claimed by advocates of the system that side sway is greatly reduced by its use, though in this respect it is only fair to say that the reduction of side sway is most fully realized with the use of semi-elliptic springs. But while the absence of side sway is to be desired, resilience also is wanted, and advocates of three-quarter elliptic springs promptly "slap back" at the semi-elliptic contingent by saying that semi-elliptic springs are deficient in this

this increases the general efficiency of the springs.

The careful observer doubtless has noticed that there is one decidedly different point of spring hanging on the majority of automobiles and horse-drawn carriages, namely, that on many carriages a single semi-elliptic spring placed transversely is used in both front and rear, and that except in very few cases, automobile springs are placed longitudinally. The reason the springs are placed longitudinally is to absorb to a certain extent the forward lunge of the body of the car, which always is present when the vehicle is in motion. Though the system of placing the springs transversely is not applicable to heavy cars,

they give no hint of the fact which is evidenced by the continual squeak emanating from almost nine cars out of ten, grease cups or oil holes on spring shackles are placed there to be used and are not for ornament alone, though it might be said in justification of the owners that some grease cups are, owing to their woefully small size, good for little else but ornament. Another of the peculiar points of construction is that the grease passages themselves often are so small that hard grease cannot be used, and if soft grease is used it runs out without attaining its end. With the laudable object of obviating recurring troubles, it would be wise for the owners of cars equipped with such "ornaments" and miniature grease passages to replace the former with real grease cups and to drill out the passages slightly larger. Undoubtedly such drilling will weaken the pins to a certain extent, but usually the holes are so very tiny that they may be drilled out to practically twice their size without seriously endangering a fracture.

As regards the placing of lubricant between the leaves of the springs—this should be approached with caution. Cases of squeaks being caused by the leaves are so rare as to be negligible. Generally the whole trouble will be found to be in the shackles. While the placing of lubricant between the leaves probably will cause the car to ride more easily, it should be remembered that friction between the leaves actually is desired and is essential to the proper action of the springs. As has been pointed out heretofore, the springs are designed to absorb the jars of travel by friction between the leaves rather than by transforming them into oscillations.

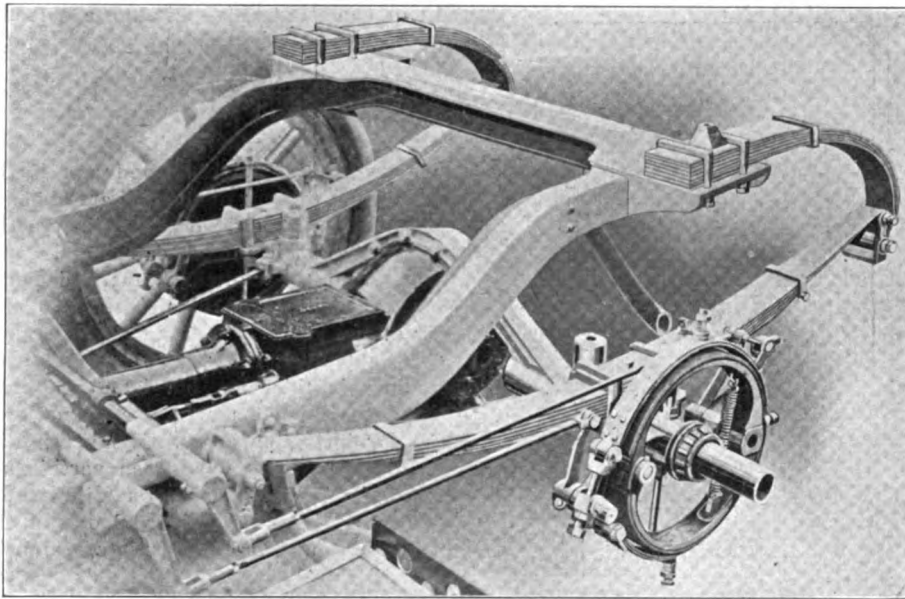


FIG. 5—STEARNS SCROLL THREE-QUARTER ELLIPTIC SPRINGS.

respect. Whether or not this is the case is open to question, though complaints seldom are heard.

Three-quarter elliptic springs are peculiarly adaptable to many of the present forms of dropped frames. Another consideration in their favor is that they are attached to the frame, and therefore support the load at two points, instead of at one, as is the case with full elliptic springs, and for this reason, also, the springs are more easily maintained in alignment. This same argument also holds good for semi-elliptic springs. Probably one of the greatest reasons for its widespread adoption is that by its use the necessity for separate radius rods, and in some cases, separate torsion rods, is obviated, the springs being so arranged as to perform the functions of one or both of these parts. Seven-eighths elliptic springs are simply a modification of the three-quarter arrangement, and differ from them in that the top quarter is carried along the chassis frame and attached at two points wide apart. In action there is thus a flexure of the top "seven-eighths" between the two clips by which it is attached, and it is claimed that

the manufacturers of such well known light cars as the Ford and Hupmobile have been quite successful, and for light cars of this general class it appears to be par excellence.

As regards the changing of springs by owners who may suspect that their cars are not quite "right," the practice cannot be too strongly deprecated. Good spring action cannot be obtained except with properly proportioned springs, and if they seem to be improperly proportioned and the car rides too easily (so as to allow the chassis to touch the bumpers on the axle) or too hard, to the designers alone should be assigned the task of righting the wrong. In the first place, they have a right to know so that they may not make the same mistake again, allowing that a mistake has been made, and in the second place, the experience of the manufacturers is infinitely greater than that of the individual owner, and it is not improbable that some other trouble or remedy may be suggested.

Last, but not least, the springs and their shackles, or other flexible connections, should be lubricated. Though comparatively few owners realize it, or if they do

About Setting a High Tension Magneto.

While the setting of a high tension magneto usually is a job which is attended to by a man thoroughly versed in such things, and therefore has come to be regarded as being more or less out of the province of the average individual, it is not as difficult an operation as it appears and may be accomplished quite easily if a little care is taken. The first consideration is to see that the piston in the first cylinder of the motor is in the firing position. That is to say, the piston is at the top and both inlet and exhaust valves are closed. Then with a wire through the petcock as a gauge, the flywheel should be turned backward until the piston has receded exactly one-eighth of its stroke, which is the position at which the magneto should "break" for full advance. A cylinder with a bore of five inches therefore would require that the piston be "backed down" five-eighths of an inch. It is unnecessary to "time" more than the first cylinder, although it will do no harm to verify them all in rotation. Having once set or "timed" the magneto there is small danger of its becoming disarranged.

MOTOR TRUCKS IN LAND OF BANANA

American Vehicle, Introduced as Experiment, Proves Successful Where Others Failed—Other Orders Follow.

"I have interviewed each of the managers of the four fruit companies here with regard to the use of motor trucks in the banana business and especially with respect to the experiment in progress with a car of British manufacture, [which was sent 'on approval' with a driver and a supply of repair parts,]" says the American Consul at Port Antonio, Jamaica, in an official report. "None of the four knew that there

manufacturer seemed equally confident of a satisfactory result of the trial."

In a later report from the consul, Dreher, he says: "Through letters from the American consular agent at Port Maria and from a prominent exporting firm at that place, I am informed that the American car to which reference was made in a previous dispatch has done its work very successfully in the parish of St. Mary, and that the agent of the company will soon return to the United States to bring down two more motor trucks to be used for hauling bananas."

"In the meantime steps are being taken to form a mutual liability company to operate a number of power trucks in that parish. A few planters have agreed to be-



KISSEL TRUCK IN JAMAICAN BANANA PLANTATION SERVICE.

was about to be made an experiment with an American motor truck; but on yesterday a member of one of these companies, who resides in the adjoining parish of St. Mary, returned from a visit to the United States, bringing with him to be tested a car [a Kissel] manufactured at Hartford, Wis., of 50 horsepower, with a capacity of three tons. An agent of the manufacturers and a chauffeur came with the machine to make the test of its suitability for use on a banana plantation. They also brought down a 60 horsepower passenger automobile. It is a pleasure to make this statement with regard to the enterprise of an American manufacturer in his effort to introduce his machines into Jamaica under favorable auspices.

"It may be well to add that the member of the fruit company who brought the truck to his plantation expressed to me his belief that the car would prove a success in his business, and the agent of the American

come stockholders in such an organization, while others are reported to be as yet undecided. An officer of the United Fruit Co. at Port Antonio has informed me that, as that company had already lost money in a motor car enterprise, it would be unwilling to take stock in another company of that sort until further experiments had fully demonstrated the adaptability of automobile trucks for hauling bananas under conditions that have prevailed.

"It is to be remarked that as this is the dry season in Jamaica the cars now being used have no opportunity to be tested on wet roads and on narrow roads in rainy weather, when in turning aside to pass another vehicle the wheels of heavy motors are apt to become mired in mud. However, as the American car has done so well, it may be advisable for manufacturers of motor trucks to send catalogs to this consulate and to the consular agency at Port Maria."

OPENING IN DOMINICAN REPUBLIC

**Not a Large One but Still an Opening—
New Road and a Coachman Stimulate
Automobile Demand.**

"There are several conditions unfavorable to a wide extension of the sale of automobiles in the Dominican Republic, the principal one being that comparatively few people are financially able to purchase them," says the American Vice-Consul at Santo Domingo. "A second reason is that the country lacks roads suitable for motoring. However, there is now being constructed from Santo Domingo, a well paved city of some 20,000 inhabitants, a splendid macadam road leading to the city of San Cristobal, a distance of some 20 miles. Ten miles of this road are open to traffic and offer motoring facilities. This is the only driveway in the neighborhood and is the cause of the present number of automobiles in use here. During the past eight months there have been imported some 15 machines from the United States and Porto Rico, the majority of them since the beginning of the year.

"In September, 1910, there were only two machines in this city, but later an enterprising coachman brought one from Porto Rico for hiring purposes. His venture in this direction must have been partly successful, for this car was soon followed by another of the same make and one of another make, and in the past three months about 10 cars have been purchased and are being used daily for hiring purposes in the city. Three cars arrived on the last steamer. The machines formerly rented for \$5 per hour; the price now is \$3. The import duty on automobiles is 20 per cent. ad valorem. Gasolene sells for 50 cents per gallon."

American Car Makes Good in India.

"An American motor car has made an excellent reputation in India during the last year, and as a result 30 of this make have been sold to the Eastern Bengal Government for use at the Coronation Durbar in December, and the prospect is good for the sale of many more," reports the American Consul-General at Calcutta. "This American company put its prices right, furnished good cars, and was painstaking and generous in looking after repairs, etc., after the cars were sold and started. They will be a good advertisement for the American motor car."

To Avoid "Racing" in Starting Engines.

If the ignition current first is cut off and the throttle then is opened, the unnecessary racing of an engine to ensure easy starting will be obviated and the useful life of the motor considerably increased.

ROUGH GOING IN THE PHILIPPINES

Hupmobile Globe Girdlers Accomplish a Notable Journey—Rafts and Caribou Wallows Instead of Bridges.

Accomplishing a feat never before performed in the history of the Philippines, the Hupmobile "export expedition" blazed the way from Manila to Baguio, the summer capital and hill resort. Highways leading out of Manila are fairly good and the roads within 40 miles of Baguio are a credit to the American engineers who have built them, but the intervening 150 miles made the going laborious every mile of the way.

Along the route bridge after bridge built in the Spanish days had crumbled, and the disused roads were overgrown with grass. These fallen bridges forced runs across untracked country—through rice fields, across innumerable fords and in some cases floating across on rafts.

The Hupmobile party, which since has left the Philippines and is much further on its way around the world, included Tom Jones and Thomas Hanlon, of Detroit, and a native guide. For about four hours the going was good, then came mud holes and trackless stretches which would have been absolutely impassable in the wet season. It was not uncommon to have mud and water come above the running board.

"Early in the afternoon," writes Jones, "we reached the Penaranda River, where the only means of crossing was a railroad bridge. The ties were fully eighteen inches apart and we had to get the native to go ahead and lay planks, the car proceeding about 10 feet at a time. After the bridge had been crossed with an hour and a half of hard work, we ran into a series of trestles that could not be planked, as there was a sheer drop of 40 feet on either side. There was no way to get off the road bed, so there was nothing to do but lift the car and turn it around and recross in the same tedious manner.

"We camped that night with Mr. Miller, an American school teacher, and the next day at San Isidio crossed the river on a raft of bamboo poles. This was so light that the natives had to swim along the edges to prevent the car from sinking.

"At noon we reached Cabanatuan, where there was another deep river to cross. This river was spanned by a bridge of bamboo and grass. The American engineer, W. E. Weaver, in charge of road work there, doubted whether the bridge would hold the car, but we managed to get over in safety.

"The only stretch of good going encountered in the whole afternoon was about three miles of partially built road. On this stage of the trip bridges were unknown and we bumped across open fields and through caraboo wallows until Pangasinan province was reached.

"Here the government road began. A block system similar to that on the railways is used. Vehicles are held at one of the camps until all approaching in the opposite direction have passed. There is a stage line of eight-cylinder automobiles operated by the government between the end of the railroad and Baguio.

"Just before Baguio is reached there is a hill known as the Zig Zag. Around this hill is a splendid road, a monument to the skill of the American army engineers. Twenty-two miles of this climb is over the Benguet road, and seven over the Zig Zag. From the bottom to the top of the Zig Zag is just 1,600 feet in an airline. The road winds around and around the mountain until in some places seven different stretches of it may be seen below.

"On account of our deviation of route after the bridge incident of the first day, we were thought to be lost, and when we reached Benguet we found one of the passenger automobiles just about to start out on a hunt for us.

"The Hupmobile followed the schedule of the big cars up the stiff climb and landed in the mountain capital amid cheers and congratulations from numerous American friends."

Celebrated "Fourth" with Economy Tests.

Without the aid of fireworks the Brush Runabout Co., of Detroit, Mich., celebrated the "glorious Fourth" in a widely scattered series of 100 mile economy tests, Brush agents in various parts of the country being the participants. All reports of the tests have not reached headquarters as yet, but according to those so far received the simultaneous running of a great number of cars under identical rules and conditions evolved a winner with a performance of 48.4 miles per gallon of gasoline. This showing was made in Los Angeles, Cal., by Y. R. Del Valle, who used only two gallons and one-half pint of gasoline for the 100 miles. A. D. McClellan, of Oakland, Cal., made the next best showing. He used two gallons, one quart and one-half pint of gasoline for the 100 miles. Thirty-two other contestants averaged 25.9 miles per gallon, traveling at an average speed of 18.9 miles per hour. Economy of lubricating oil was equally as wonderful as the low consumption of gasoline. John Moore & Co., of New York City, and R. J. Hunt, of Trumansburg, N. Y., each covered the 100 miles on one-quarter of a pint of oil, which is equivalent to 3,200 miles per gallon. Each competing car carried an observer who was either an official or appointee of a recognized automobile club and in no way associated with the Brush company. In some cases, the dealers invited their own competitors to act as observers. Carburettor adjustments by three contestants and spark plug cleaning by three others were the only occasions for attention in the whole contest which so far have been reported.

STRONG PRAISE FROM FIRE FIGHTERS

He Gives Facts and Figures Concerning Springfield's Motor Fire Engine—Added Comfort for Men.

Most of the fire department men who have to do with motor driven apparatus are enthusiastic in its praise, but if any of them are more enthusiastic than Capt. A. H. Strong, of Hose Company No. 7, of the Springfield (Mass.) department, he has not raised his voice so that it could be distinguished.

Captain Strong has had charge of a Knox chemical engine ever since it was installed, nearly three years ago, and he therefore is in a position to know whereof he speaks, particularly as he has kept an accurate account of cost of both horse and automobile service and also the proportionate number of times each has been immediately available to answer calls.

"For the two years and nine months the Knox chemical engine has been in service," he says, "the entire cost of upkeep has been \$385.60, which includes tires, repairs, gasoline, oil and batteries. Of this amount \$315 has been for tires.

"The car has made 398 runs and the runs average about two miles. The reason our tire cost is so great is that we contract for tires by the year. In the 398 calls there were but five times when the car was not immediately ready; however, we were never delayed longer than five minutes.

"The cost of keeping a horse in a fire house in Springfield is \$240 a year, which includes feeding, shoeing and ordinary expenses, but does not include wear on floors and stables, caused by the sharp calks of the horses' shoes; nor does it include plumbing, maintenance of harness or apparatus, nor depreciation of horses. The first cost of a fire horse is from \$250 to \$300 and the average life is five years.

"Besides, there is an exercise wagon which, while costing comparatively little, requires space in the engine house. There is about one hour each day when horses are not available for quick response to fire alarms on account of being out exercising.

"Each team requires a driver, at a cost to the city of \$1,095 a year. This man is not available for fire fighting, as he must remain with his horses at all times.

"Summing up the comparative cost: A horse-drawn chemical engine in two years and nine months cost in round numbers \$5,000 to maintain, as against \$385 for the motor chemical, and our chemical hardly has the new worn off yet. In estimating the yearly cost of the horse-drawn engine, the driver's wages are included because the driver is not and cannot be, a fire fighter, while the driver of the motor chemical engine is a fire fighter.

"To a city, the least thing to be considered is the cost of its fire fighting apparatus, and in spite of the showing we have made, I consider it the least of the many advantages which the motor apparatus has over the horse-drawn.

"Speed, with safety and reliability, are the chief things to be considered in the equipment for fire fighting. All the apparatus from the outlying districts of a city can be quickly concentrated on a big fire in an incredibly short space of time when the motor fire engine is universally adopted. When that time comes it will not be necessary to have engine houses so near together as at present.

"Equipment can be increased without additional cost of buildings, as two pieces of motor apparatus will be accommodated in the same floor space as is necessary for one piece of the horse-drawn. Horses are much more liable to accident than automobiles, and in a sudden sleet storm, deep snow, hills, icy going, or long runs, the automobile shows to great advantage over the horse.

"The comfort and convenience of the fireman is not a small matter. Where there are horses there also are flies, flees and mosquitos, and as firemen cannot be hampered with screens this phase of the fireman's life is worth consideration.

"One of the biggest fires we have had in Springfield for years got under headway before it was discovered; it required that a general alarm be sent in. The horses that should have arrived first were delayed some minutes by the slipping and falling of one on the icy pavement. Our machine was on the scene and had water on the fire before any of the apparatus from the nearest houses arrived, although we were twice as far away."

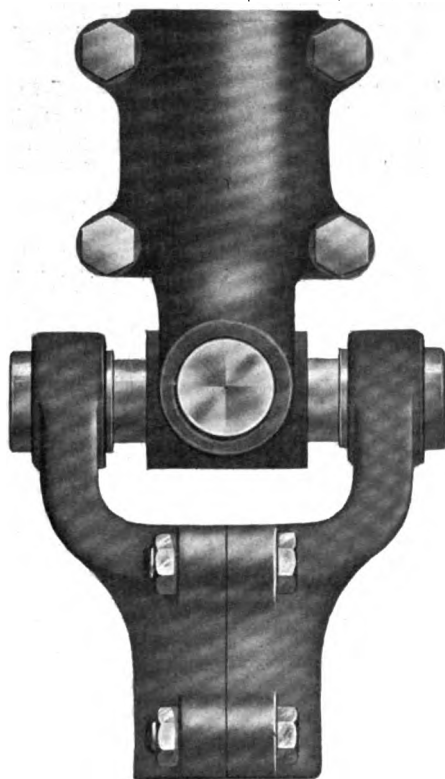
Rust Where There Should Be None.

It not infrequently happens that when cars are disassembled during the course of an annual overhaul, or to make minor repairs, spring shackle bolts are found to be rusty in spots, showing that they have been imperfectly lubricated. The same trouble may be discovered in the steering connections and, in fact, in almost any part of the car which is lubricated by means of grease and grease cups. And this in spite of the fact, that the plungers of the several grease cups have been religiously screwed down at stated intervals. Generally the trouble is caused by the use of grease which is too heavy. If the grease passages are small and very hard grease is used, instead of being forced to the "seat of action" as it should be, it simply squeezes past the plunger of the grease cup, and unless the operator is extremely careful he is none the wiser. Obviously the remedy is embraced in the use of slightly lighter grease, though in this respect it should be remembered that if very much lighter grease is used it is likely to thin out under the action of the sun.

HERE'S A TELESCOPIC UNIVERSAL

Old Idea Applied to Automobile Construction—How it is Worked Out and the Purposes Served.

Introduced by the Patented Specialties Co., 222 Kimball Building, Boston, Mass., by which firm it also is manufactured, The Two-in-One Telescopic universal joint which is shown in the accompanying illustration is of particular interest in that it obviates the necessity for a short floating shaft and two universal joints such as are



at present required in coupling two rotating shafts which are out of line. Appearances often are deceptive and it may not generally be known that with the ordinary type of universal joint the shafts which are coupled actually are "in line" though they may not appear to be, which is to say that if the shafts were lengthened they would meet at a common center which would be the center of the universal joint. When it is not possible to place them in these relative positions it is necessary to use a short shaft between them with a universal joint at each end of it.

Owing to the construction of the Two-in-One Telescopic universal joint, however, it is not necessary that two shafts which it is desired to couple be in line. As may be seen in the illustration, the Two-in-One joint is not unlike the orthodox universal joint in appearance; in operation it also is similar in some respects, though in construction it is distinctly different. Like other universals, it is composed of two

yokes which are fastened to the ends of the shafts which are to be coupled, though unlike others, means is provided for a lateral movement between the yokes, the amount that the coupled shafts may be out of line being governed by the amount of this lateral movement. The joint is made in two styles, style A being substantially as described, while style B is exactly similar to it in other respects, and in addition the center block, which which in the other is solid, is made in halves which fit into each other permitting a telescopic movement at this point in addition to the lateral movement which is allowed between the yokes. It is claimed that the device accomplishes its object without undue friction and with absolutely no lost motion.

Cooks Produce a Transmission Lubricant.

As between ordinary lubricating oil and ordinary grease the prevention of friction in the gearbox is rather a difficult matter to accomplish. Oil, while permeating every part satisfactorily tends both to drain off when the active parts are at rest, and to be thrown off by centrifugal force when they are in motion. Grease, on the other hand, while more adhesive in its properties than oil and, therefore, less liable to be thrown off the revolving surfaces, does not penetrate the meshes of the teeth, but is apt to be furrowed by them and merely swept aside. Cook's Auto Transmission lubricant, which Adam Cook's Sons, of New York City, have added to their productions and now are introducing, has been compounded with the object of overcoming both sorts of difficulty. It is designed to flow over extended surfaces in the form of a thin film with the freedom of motion of an oil, at the same time resisting the centrifugal tendency, and acting as a cushion between the teeth to deaden the shock of impact as well as to prevent the actual tooth to tooth contact which results in friction and abrasion.

Pedersen Evolves New Oil Indicator.

Sight-feed indicators that are subject to the splashing of oil on the glass, or that fill up on the slightest provocation, even when the oil leads are not choked, are not always held in high respect by the motorist. Their value is lost because they are deemed untrustworthy. In seeking to avoid these difficulties simultaneously, the Pedersen Lubricator Co., of New York City, has developed a new form of dash indicator, in which a cylindrical body, set at an angle to the face of the dash, contains the single drip feed. As the front, which is the only part of the device made of glass, is inclined away from the drip, there is no chance of the glass being spattered or clouded, even when the car is tipped on steep grades, while the lower part of the glass is far enough above the outlet so that oil will not back up against it unless the outlet is absolutely blocked.

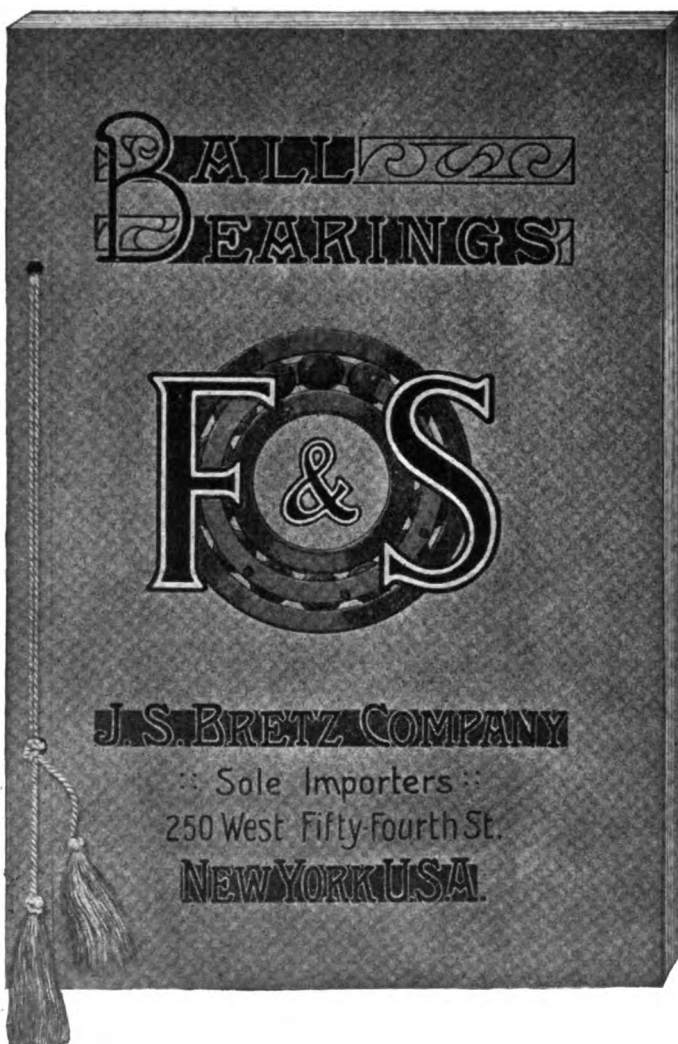
F & S

Ball Bearing Catalog for 1911

The illustration below is a half size photographic reproduction in black and white of the cover of the 1911—F & S Ball Bearing Catalog. The original of the cover is of heavy gray card-board bound with silk cord and tassels. The printed title is heavily embossed in black and white, and black and green, the whole a fine example of the German Printer's art in English text. The text consists of 134 pages printed in black on heavy coated paper, with borders in brown. The illustrations of the bearings are from original wood cuts, not half-tones, which always show a distorted circle; the only half-tone cuts in the book being views of the

great German Plant at Schweinfurt a/M where F & S bearings are produced. The valuable and handy tables in the book consist of load tables expressed in kilos and R. P. M., diameters, bores, radii in mm., and number of and diameter of balls in the single and double row annular type. Other tables show the details of Single and Double Thrust Bearings, Plummer Blocks of various types and Hanger Bearings, besides a page of complete directions for mounting and lubricating F & S Ball Bearings.

This catalog de luxe of the world's quality ball bearing is free by mail for the asking. May we send it to you?



Our own Engineering staff and the capable staff of the German Plant are at your service, and are prepared to take up with your own departments in this line, any ideas or suggestions that might be indicated by you for your future wants.

Send us your blue prints, specifications and photos, and we will submit without charge, a blue print of a detailed ball bearing construction to replace your plain bearing journal.

J. S. BRETZ COMPANY
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Recent Patents

987,772. Horn for Use on Motor-Cars and the Like. Benjamin Swan and Ernest Edgar Stuart, St. Albans, England. Filed June 17, 1910. Serial No. 567,387.

1. In a sounding horn, the combination, with an air compressing pump provided with a piston, and an air tube connected to the pump cylinder and provided with an outlet port, of a sounding trumpet connected to the said tube and its port, and a piston valve connected to the said piston and slidable in the said tube to open and close its port.

987,801. Valve Mechanism for Explosion-Engines. Charles R. Greuter, Saugus, Mass. Filed Apr. 17, 1909. Serial No. 490,482.

1. In combination, a cylinder head having an inward taper in longitudinal section to the valve seat forming at the extremity of said taper a valve seat, a tubular exhaust valve of hourglass form adapted to engage said seat, the co-operating portion of said valve being formed on a taper merging into that of the cylinder head, and a second valve adapted to seat on the end of the tubular valve.

987,806. Antiskidding Device for Vehicle Wheels. Ora B. Kibby, Cincinnati, Ohio, assignor of one-half to Edgar J. Moch, Cincinnati, Ohio. Filed Feb. 23, 1910. Serial No. 545,335.

1. In an anti-skidding device for vehicle

wheels, the combination of a pair of side clamp-plates having bearing-faces thereon for the sides of a spoke and felly of a wheel adjacent to the joint between said spoke and felly adjacent to said joint, clamping means between said mated clamp-plates acting laterally on said clamp-plates for clamping said spoke and felly with lateral pressure between said clamp-plates, and a flexible tread-member having releasable attachment with said plates, substantially as described.

987,833. Vehicle Spring. Arthur R. Selden, Rochester, N. Y. Filed Aug. 15, 1906. Serial No. 330,738.

1. In a vehicle spring device, a vehicle body composing one part thereof, a wheel carrier composing another part thereof, means for preventing tilting and longitudinal movement of one of said parts with reference to the other, a link pivoted to and depending from one of said parts, a balance bar pivoted between its ends to the free end of said link, and a pair of springs attached to the other of said parts having one spring connected with the inner end of the balance bar and the other spring connected with the outer end of the balance bar.

987,843. Headlight Controller for Vehicles. Clarence E. Walters and Alva M. Walters, Red Oak, Iowa. Filed Oct. 3, 1910. Serial No. 585,055.

The combination with an automobile comprising a front axle, knuckle joints at each end of said axle, steering wheels on said knuckle joints, longitudinally extending springs secured to the top of said axle and longitudinally extending side frame bars having their forward ends secured to

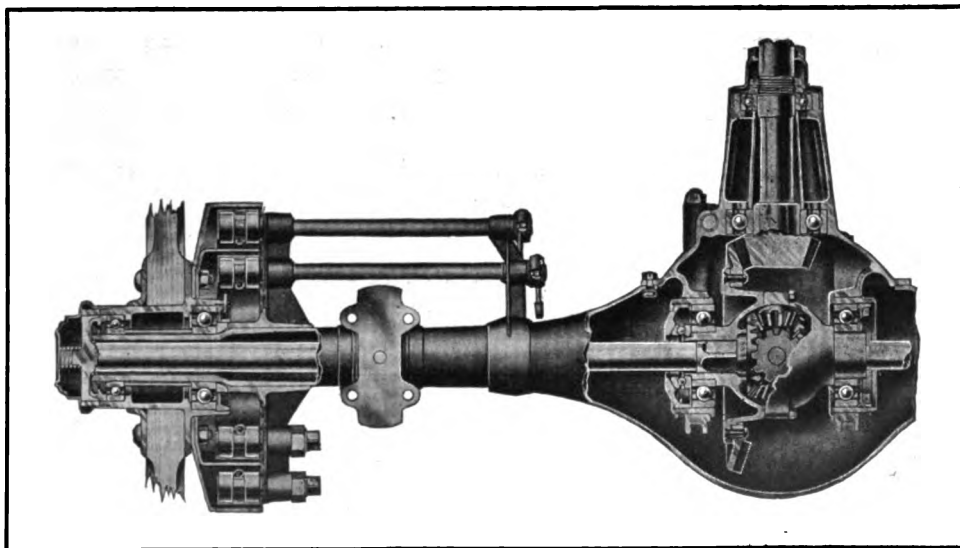
said springs, of laterally extending bearing members secured to the tops of said bars; lamp brackets having vertical stems extending through said bearing members, one of said stems being continued below the corresponding spring; a guide member secured to side of the corresponding spring and loosely embracing said extending stem; a connection between said brackets for causing them to rotate in unison; a forwardly extending arm secured to the lower end of said extending stem; a forwardly extending arm secured to the knuckle joint on the side opposite said extended stem; a link connecting said arms, said link extending laterally and inwardly from said knuckle arm parallel with said axle, then forwardly and then laterally and outwardly to said stem arm; and a supporting arm secured to said front axle and slidably engaging said link, substantially as described.

987,954. Multiple Disk Clutch. Alanson P. Brush, Flint, Mich. Filed Jan. 12, 1910. Serial No. 537,623.

1. In a multiple disk clutch, the combination of a rotatable driving member carrying an annular vise jaw, a co-axial driven member, a series of friction disks embracing said driven member and having a sliding torque-transmitting engagement therewith, a disk carrier slidably mounted on the driving member and having a flange which overhangs said driven member, a series of disks within said flange having a sliding torque-transmitting engagement therewith, a vise jaw fixed to said flange, and means for moving said disk carrier longitudinally.

987,977. Shock Absorber. Phelps M. Freer, Rochester, N. Y., assignor, by mesne assignments, to The Connecticut Shock

AUTOMOBILE AXLES—1912



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cent. better than any adjustable bearing. Annular bearings are the best insurance against bearing trouble, and add great value to the whole car. We make cup and cone bearings of annular steel, and can supply taper roller bearings of annular steel, but we recommend annular ball bearings as they are 100 per cent. good and are fool proof. We have not had to replace one in three years.

THE McCUE COMPANY, Hartford, Conn.

Absorber Company, Meriden, Conn., a Corporation of Connecticut. Filed Jan. 13, 1910. Serial No. 537,971.

1. In a shock absorber comprising two relatively rotatable parts, one part comprising a cam, the other part comprising a case surrounding and supporting said cam, a lever arm carried by each part and projecting laterally therefrom, said cam having a plurality of high points, a plurality of springs arranged to be flexed by the rotation of said cam, said springs being carried by said case and a connection between the cam and its lever arm comprising an angular block extending concentrically into the cam, said cam having an angular recess to receive said block wherein said block is held against rotation independently of the

cam, and means for connecting said lever to the outer end of said block.

988,229. Automobile Spring. Charles Arthur Tilt, Chicago, Ill., assignor to John W. Blackledge, Chicago, Ill. Filed Oct. 9, 1909. Serial No. 521,808.

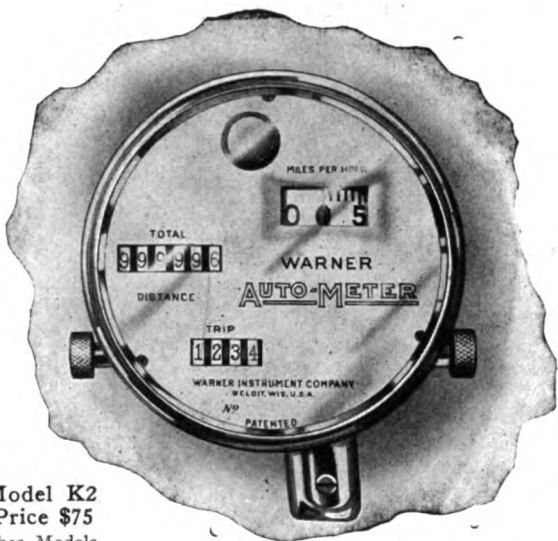
1. The combination with the two members of a vehicle elliptical spring, of two pairs of vertical guides, means for securing the end of the lower member of the spring between the pairs of guides, two pairs of sleeves surrounding said guides, means for pivotally supporting the end of the upper member of the spring between and directly by the pairs of sleeves, a plate secured to the lower ends of said guides, and coiled springs surrounding said

guides and supported intermediate of said plate and said sleeves.

988,305. Tire Holder. Weston F. Bright, Springfield, Mass. Filed Sept. 23, 1910. Serial No. 583,339.

1. In a tire holder, the combination with a suitable support, a frame element attached to said support, the upper portion of the frame being provided with a plate for supporting the weight of a tire rim, and the lower portion of the frame having means secured thereto for receiving the rim, and means interposed between said tire receiving means and the plate for clamping the rim in place and against displacement.

988,374. Internal Combustion Engine. Edward C. Newcomb, North Scituate,



Model K2
Price \$75
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\$50 to \$145.

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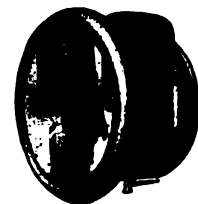
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Mass., assignor to Newcomb Engine Company, New York, N. Y., a Corporation of New York. Filed Sept. 7, 1907. Serial No. 391,759.

1. An internal combustion engine of the compression type, including means for supplying charges of air to the piston chamber, means for supplying variable charges of a liquid fuel to said chamber during periods beginning subsequently to the beginning of the air supplying periods, means in said chamber for regulating the extent of the diffusion of the fuel in the air whereby variable portions of the air charges are effectively carbureted at or near the ends of the compression periods, and means for igniting the carbureted portions of the air charges at predetermined periods, whereby substantially complete combustion of the fuel may be effected at the instants of maximum compression.

988,417. Vehicle Cushioning Device. Peyton West, Springfield, Ohio. Filed Dec. 27, 1910. Serial No. 599,477.

In a cushioning device for vehicles, the combination of a vehicle running gear, an air cylinder supported upon an axle of said running gear, a piston in said cylinder, a rod extending from said piston, a ball socket attached to the end of said piston rod, a ball member in said socket forming a universal joint therewith, said ball member terminating in an extended flange, and a bearing attached to the running gear frame and in which said flange is slidably mounted, and whereby there are provided two yielding joints between the running gear of the vehicle and the piston rod, substantially as and for the purposes specified.

988,448. Oscilating Device for Motor Vehicle Wind-Screens. Jacob W. Earl, Los Angeles, Cal. Filed Nov. 3, 1908. Serial No. 460,813.

1. In a device of the class described, a wind screen divided into an upper section and a lower section hinged together, said screen being pivotally mounted on the motor vehicle, and brace rods pivotally secured to the vehicle frame and having a pivot connection with said upper section, said pivot connection being located at one side of the hinged edge of the upper section.

988,502. Carburetter. Louis J. Petre, East Cleveland, Ohio. Filed Dec. 28, 1907. Serial No. 408,371.

1. In a carburetter, the combination of a carburetting chamber, having an opening in the bottom thereof, an elbow projecting downwardly from said opening and provided on its lower surface with a threaded seat, a cylinder threaded onto said seat, a valve on the upper end of said elbow and having a stem projecting into said cylinder, a piston on said stem, a spring interposed between said piston and said seat, a valve controlling the supply of fluid fuel to said chamber, and connections whereby said valves may be operated simultaneously, substantially as specified.

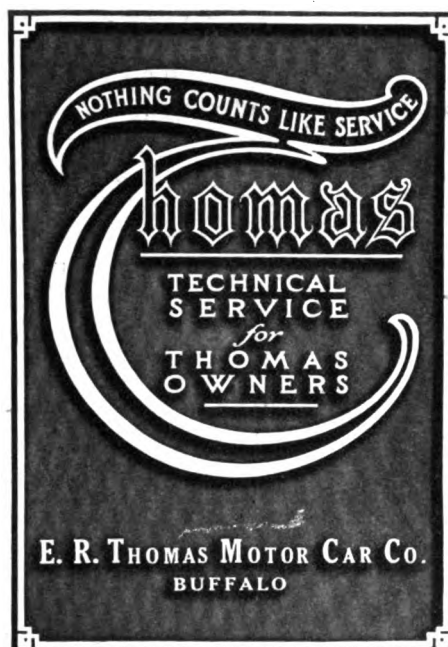
988,563. Pivot Light for Automobiles. Harry C. Frandsen, Concord, Cal. Filed Dec. 5, 1910. Serial No. 595,582.

1. The combination of a lamp bracket, having a vertical stem, a sleeve bearing of considerable length in which the stem turns, said sleeve bearing having an offset flange for attachment to a part of a vehicle frame, the stem carrying a pinion, a rack engageable with the pinion, and reversible means to hold the rack against the pinion capable of being inserted between the rack and

pinion to lock the latter against turning without interfering with the reciprocating movement of the rack.

988,607. Power Transmission Device. William Waring, Quincy, Mass., assignor to National Brake & Clutch Company, Boston, Mass., a Corporation of Maine. Filed Oct. 20, 1910. Serial No. 588,169.

1. A power transmitting device comprising an endless belt, and a series of blocks attached to said belt and provided with sockets in their opposite ends and with facing pieces of flexible fibrous material having holes in line with said sockets, and corks inserted into said sockets and extended through said facings substantially flush with the outer surface thereof, substantially as described.



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*Michellin
Milltown
New Jersey*

THE MOTOR WORLD

Vol. XXVIII.

New York, U. S. A., Thursday, July 20, 1911.

No. 4.

DURANT ASSISTING NEW VENTURE

His Former Lieutenant Admits He is Interested in Chevrolet's Car—Factory Leased and Company Forming.

That W. C. Durant, once the head of the Buick Motor Co., and the man who engineered and until a few months ago dominated the General Motors merger, is engaged in assisting another automobile venture, if he is not actually preparing to cast loose from the General Motors Co., there now appears to be no doubt.

William H. Little, at one time factory manager for the Buick company, who later figured as Durant's assistant in New York, is authority for the statement that Durant is aiding him in the formation of what will be styled the Chevrolet Motor Car Co., of Detroit, which will manufacture a high powered speed car designed by Louis Chevrolet, the well known racing driver. The company probably will be capitalized at \$750,000, and according to Little, Durant will be one of its officers, or at any rate, he can be one, if he so desires. Some other of the original Buick stockholders also will be connected with the new enterprise, it is stated.

The first definite move has been made by the leasing of the factory on West Grand boulevard, in Detroit, which now is occupied by the Corcoran Detroit Lamp Co., which affords 75,000 square feet of floor space. The lamp company will vacate the building about August 1st and remove its equipment to its parent plant in Cincinnati.

"While I am organizing the company and Mr. Durant is aiding me in every way, we will have a closed corporation, in a way, and have more money at our disposal than we will need; in fact, we are in a position to select our stockholders, which we will do," Little is quoted as saying.

"We are not ready to give out the particulars as to the car we will place on the

market, but while it will compete in a general way with the General Motors company, it will really invade a special field.

"I expect that we will incorporate in this state and that the capital will be of a large amount. The lease we have taken on the plant of the Corcoran Lamp company is simply a temporary matter and not the ultimate idea we have in mind."

Whether the "ultimate idea" includes another merger, which it now is known Durant was seeking to effect, remains to be seen.

Recovers Rent from Royal Tourist.

Judgment for \$1,012 was entered in New York last week against the Royal Tourist Car Co., of Cleveland, Ohio, in favor of the General Vehicle Co., of New York, that sum representing unpaid rent and accrued interest of the premises in the Motor Mart, at Broadway and 62d street, which were occupied by the Royal Tourist's New York branch. The store was subleased by the General Vehicle Co. to the Royal Tourist company at an annual rental of \$5,500, and suit was brought when the latter failed to meet the March and April payments. The summons was served on George J. Dunham, president of the Royal Tourist company, when he was in New York on June 20 last.

Order Countermanded; Sues for \$105,000.

Because the Velie Motor Vehicle Co., of Moline, Ill., countermanded an order for 1,000 motors, the Armstrong Iron Co., of Racine, Wis., has entered suit in the United States Circuit Court in Peoria, Ill., for \$105,000. The Armstrong company alleges that the contract called for the delivery of the motors at the rate of 60 per month and at a price of \$210 each, but none had been delivered when the order was countermanded. The plaintiffs state, however, that they already had altered their plant and incurred other expenses to the amount of \$45,000, and they are suing to recover this sum plus \$60,000 profit, which they allege the contract, if carried out, would have netted them.

SPHINX ACQUIRES A SLIDE VALVE

Berg Conveys Reno-Bois Rights to New Licensing Company—Saurer Truck Officials Prominent in Project.

Hart O. Berg, who revisited America early this year to exploit the Reno-Bois slide valve engine, did not return to Paris without having achieved results. None of the various manufacturers who were invited to examine the engine adopted it, but men identified with the Saurer Motor Co. became sufficiently interested to form an American company to acquire the Reno-Bois patents for the United States, Canada and Mexico, and this company, the Sphinx Motor Co., a Delaware corporation, with offices in New York, is now ready to grant licenses for the use of the engine on this side of the water.

The officers of the Sphinx company are: President, C. Philip Coleman, who is president also of the Saurer Motor Co., and who at one time was vice-president and secretary-treasurer of the Singer Sewing Machine Co.; treasurer, D. W. Yeckley, who is treasurer also of the Bayonne Steel Casting Co.; secretary, Vernon Munroe. The directorate is composed of C. P. Coleman, W. D. Sargent, Wm. A. Redding, Harry W. Davis and Arthur H. Lockett.

Messrs. Sargent and Lockett, like Mr. Coleman, are directors of the Saurer Motor Co., and Mr. Redding is a well known attorney, with whom Hart O. Berg was in frequent consultation while he was in New York. The New York offices of the Sphinx company are in room 2006 of the Hudson Terminal building, which is also the office of the Saurer Motor Co., which only a few months since acquired the American rights to the Saurer truck, which is being built in Plainfield, N. J.

While designated as a sleeve valve motor, the Reno-Bois construction is not to be confused with that of the Knight engine and kindred types, in which the valve mem-

bers are in the nature of movable cylinder liners which surround the piston. The single valve which is used in the Reno motor is mounted in the upper part of the cylinder, above the range of piston travel. Its vertical movement alternately uncovers and covers the inlet and exhaust ports, which are located in the walls, the action being closely similar to that of certain forms of piston slide valve employed in steam engine construction. The valve is in the form of a split ring and therefore yields to the expansion and contraction of the cylinder. It is actuated by means of a short walking beam which projects through an opening in the side of the cylinder casting, the valve being hooded over the end of the beam to prevent the escape of gas. A tappet rod and cam system serves to deliver motion from the cam shaft at the side. Under test, one of the engines measuring roughly $3\frac{11}{32} \times 5\frac{1}{8}$ inches, is claimed to have developed 28 horsepower at 1,350 revolutions.

In France, the Reno engine is used by Georges Richards, and in Germany by the N. A. G. Co., the motor department of the Allgemeine Electricitaets Gesellschaft.

Taxicab Company to be Reorganized.

Francis C. Huntington, receiver in bankruptcy of the Cab & Taxi Co., of New York, of Nos. 252 to 262 West Fortieth street, has obtained an order from the United States Court confirming the sale of the entire assets of the company to Belvidere Brooks, W. B. Lasher and T. Tileston Wells, the reorganization committee. The assets were appraised at \$374,429 as a going concern and at \$218,501 at a forced sale. The liabilities are about \$3,000,000, of which \$93,000 are to the first mortgage bondholders and \$2,500,000 to second mortgage bondholders.

The plan of reorganization provides for a new company with capital stock \$1,700,000, of which there is to be first preferred \$200,000, second preferred \$250,000, and common \$1,250,000. There is also to be a bond issue of \$250,000 to provide ready money. The stock is to be distributed as follows: To first mortgage bondholders, \$183,000 first preferred stock; general merchandise creditors, \$225,000 second preferred stock, and to second mortgage bondholders, \$1,250,000 common stock at the rate of 50 cents for each dollar of bonds. For those who do not accept the plan it is provided to pay general creditors 10 per cent. of their claims in cash and to second mortgage bondholders 3 per cent. cash.

Tops Bring Small Price at Auction.

Under a trust mortgage given for the benefit of creditors of the United States Auto Top Co., 961 Beaubien street, Detroit, Mich., the concern's stock on hand was sold at public auction on Saturday last, 15th inst. Although valued at \$950 it was sold for \$275 to W. Rippey.

ADOPTS "FREE INSPECTION" PLAN

**United States Motor Co. Applies it, for First Time, to Low Priced Cars—
What it Includes.**

Although the system of periodically inspecting cars after they have been purchased long has been pursued by a number of the better known manufacturers of high priced cars, and is carried out with great thoroughness by some of them, for the first time the system is to be applied to cars of the popular priced types, the United States Motor Co. having adopted what is termed a "satisfied owners' policy," which entails the free inspection of its numerous and varied productions, including even the \$350 Liberty-Brush runabout.

According to the plan as outlined, any purchaser of a Columbia, Maxwell, Stoddard-Dayton, Courier, Liberty-Brush or Brush car or a Sampson truck, may have it inspected by the United States company's dealer or branch house, as often as once a month, if necessary, for one year without charge. The system, however, does not carry with it free repairs or replacements. To quote the language of the official announcement, it means that "the owner of one of the cars is assured of knowing just what is required to have his car working at its most efficient point, and while months may go by when the car will not need attention, the owner will have the privilege during the first year, of taking it to the dealer for inspection, while reasonable adjustments of the carburetter and magneto will be made without charge of any kind." The plan becomes effective August 1st.

Church Sells His Agency Contract.

Norman W. Church and F. W. Flint, who comprise the Stoddard-Dayton Motor Car Co., of San Francisco and Los Angeles, have disposed of their interests to the United States Motor Co., and Church, who was one of the pioneers of the industry on the Coast, will retire from business for at least a year. The Stoddard-Dayton Motor Car Co. held the agency for that car for the entire Pacific Coast, the contract having been executed with the Dayton Motor Car Co. before the latter was taken over by the United States company; the contract had four years to run, and to obtain control of the territory in order to reapportion it, the United States Motor Co. bought the contract for a round sum. Church came to New York last week to close the transaction.

Gillett Extends His Vulcanizing Business.

Charles M. Gillett, proprietor of the Gillett Vulcanizing Co., of Springfield, Ill., has extended the business by establishing branches in Decatur and Bloomington, Ill.

To conduct the establishments in each of these cities separate corporations have been formed under Illinois laws. For Decatur the incorporators are Robert R. Munsie, Walter H. Weaver and C. M. Gillett, while C. M. Gillett, K. P. Phares and F. M. Rossa form the Bloomington company. The head office of the three companies will be in Springfield.

Forse Speedometer Changes its Location.

To secure the removal of the Forse Speedometer Co. from Anderson, Ind., to Pendleton, in the same state, a new company of that name has been organized and incorporated, with \$25,000 capital. It has secured the Motsinger factory building in Pendleton and will take possession this week, employing twenty-five operatives at the outset. Messrs. Forse, Allen, Toner and other Anderson men retain an interest in the enterprise, the Pendleton stockholders being Will and Walter Swain, Fred Lautz, D. B. Cole and J. J. Rogers.

Zenith Secures a Plant in Detroit.

The Zenith Carburetter Co., which was organized some four weeks since in Detroit, to manufacture the French carburetter of that name in this country, has leased the fourth floor of the Dodge Power building in Detroit, where it is making ready to begin operations under R. D. Heftler, the manager of the American company. Work will be started with about 40 men, some of whom will be brought from the French factory.

Charlotte Men Acquire a Carburetter.

R. Crofoot, Fred Bintz, Bert Patton and M. K. Miller have organized the Charlotte Carburetter Co. in the Michigan city of that name, for the purpose of manufacturing a carburetter invented by James Whitcomb, of Charlotte, which was patented in March last. Miller, who has had the necessary experience, since he has been testing and perfecting the device, and the results he obtained led to the purchase of the patent.

Cadillac Prepares Again to Enlarge.

Having acquired the necessary land, the Cadillac Motor Car Co. is about to erect several additional buildings adjoining its present plant in Detroit. They will comprise an addition to the iron foundry, 220 x 72 feet, a new brass foundry, 140 x 50 feet, and a new three-story manufacturing building, 270 x 60 feet. Two additional stories will be added to the body building plant also, 428 x 60 feet, and 60 x 76 feet.

To Sell Otto Assets at Auction.

By order of the court, the assets of the bankrupt and short-lived Otto Motor Car Co., of New York, will be sold at public auction on Wednesday next, 26th inst. The property consists of one new car, three old ones and a lot of accessories and office furniture and fixtures.

REVISED GARAGE RULES RIDDLED

Shot to Pieces at Long Public Hearing and Will be Redoctored—Some Unusual Situations Disclosed.

Before the revised and specifically extensive garage regulations drafted by the Municipal Explosives Commission of the City of New York are enacted they will have to undergo considerable re-revision. This was made manifest during the public hearing, which occupied Monday and Wednesday of this week, at Fire Headquarters, 157 East 67th street. Each of the 62 sections of the regulations was discussed and less than one-sixth found favor.

In the very beginning Alfred Ely, representing the Automobile Club of America, which conducts the largest garage in New York, told the Commission that the adoption of the rule forbidding the storage of more than one car or one gallon of gasoline in a building in which cigars or cigarettes are sold would compel the club to go out of business and be equivalent to confiscating its property, valued at \$1,500,000. The full text of the rules was published in *The Motor World* of June 22.

The hearing was attended by representatives of the majority of those interested in the automobile industry in New York, and they came prepared to watch every section and clause. They made frequent requests for information and in many instances the Commission was unable to explain, and Inspector Kelly, of the Bureau of Combustibles was called upon to assist. This generally resulted in a lengthy discussion, of which memoranda were made by Secretary R. S. Lundy for the consideration of the Commission.

The first real snag was encountered in Section 2, a part of which requires the filing of a description and the maximum number of motor vehicles to be stored in a garage for which the permit is asked. Counselor Charles Thaddeus Terry, representing the Automobile Dealers' Association, Inc., and other organizations, said that this was an absolute impossibility. To describe the cars, he pointed out, would mean to furnish a description of every model ever made, because no garage owner could tell in advance what kind of a car he would be likely to store. Mr. Terry added he did not see the reason for a new set of garage rules, but that if the Commission desired to make changes in those now existing, he and those representing other automobile interests were prepared to co-operate in any manner that would assure the passage of rules satisfactory to both sides and all interests, instead of having rules that would have to be reviewed later by a court of law.

Gen. George O. Eaton, chairman pro tem of the Commission, replied that many of the new regulations were intended princi-

pally for private garages, which, in most cases, are a dangerous fire hazard.

Mr. Terry also objected to Section 3, which called for a detailed scale plan of the premises to accompany an application for a garage permit. "That," he said, "seems like an unnecessary hardship on the garageman and owner."

"Oh, I guess any man that can afford to have an automobile can afford to pay \$5 to have a scale drawn," remarked Commissioner Acritelli, who used to be a coroner, which fact apparently qualifies him as an explosives expert.

"That's right," quickly retorted Mr. Terry, "soak the automobile! The motorist pays for the roads, and whenever there is any money needed, why he is to be the ready and willing victim."

Things then went rather smoothly until Section 9 was reached. This is as follows:

"All garages wherein volatile inflammable oils are stored shall be continuously under the care and supervision of one or more persons each holding a certificate of fitness as a superintendent or manager of a garage. The number of persons required to hold certificates of fitness in each case shall be determined by the Fire Commissioner and shall be stated in the permit."

Arthur K. Wing, appearing for the Fifth Avenue Coach Co., the New York Transportation Co. and other large interests, said he thought making the holder of the certificate of fitness enforce the law was a bad thing, because a great many chauffeurs disregarded the law, and as a result the certificate men would lose their papers when such violations were discovered. Ex-Congressman William Willett, Jr., speaking for the Lincoln Square Garage, aroused great enthusiasm when he said the trouble was the lawlessness of the chauffeur.

"These men," said he, "threaten that they will take cars away from the garage the moment any one attempts to enforce the rules. One arrest and prosecution would solve the whole trouble. The garage owner is intimidated and the ideal thing would be to revoke the licenses of chauffeurs caught smoking in a garage. They hide in the limousines and sneak in behind cars to smoke, and no matter how many men there may be looking out, there is always some chauffeur who contrives to sneak away and get a smoke. You gentlemen can't imagine the kind of people we have to deal with as chauffeurs, the most impossible crowd on earth, thugs and thieves and burglars."

The applause that greeted his remarks showed that there were many there who felt the same way about it. It was pretty well established that if the penalty were put on the chauffeur and not on the superintendent of the garage it would be easier to enforce the law. Sidney B. Bowman said that the certificate of fitness idea took the business out of the hands of the owner and placed him at the mercy of his employee.

The chauffeur was brought in again when Section 29 was read. This covers the man-

ner in which the outlet for drawing off gasoline should be protected. The Commission wants it enclosed in a compartment having a self-closing iron door, which must be kept locked when not in actual use. When asked by Mr. Terry as to the reason for having it kept locked, Commissioner Acritelli said it was to prevent the chauffeurs from drawing gasoline to wash their tools.

The use of oil separators in garages took up considerable time. A number of those present claimed that during their experience they had found none that would fill the requirements. Mr. Ely stated that there was one in use at the Automobile Club, and Gen. Eaton said the Commission already had examined several and found one that was good. He also said others would be examined, and that he felt sure the Commission would approve of at least three makes.

Declaring the fusible plug question entirely a manufacturers' consideration and non-enforceable, attorneys Terry and Wing opposed the clause requiring the use of such devices on all tanks. Even were local machines properly equipped, tourists' machines could not be garaged, it was claimed. Inspector Kelly was sure that difficulty could be obviated by emptying the tanks of such cars. How that would satisfy the requirement he failed to explain.

Several sections were designated by attorneys representing various corporations and individuals as being illegal, particular stress being put on Section 61, which provides for a charge of \$5 on every car stored in a certain garage. The lawyers held that the statute covers license fees and no separate branch of the City's government has the right to impose an extra charge. Some of the other sections, it is claimed, already are covered by acts of the legislature, and if adopted by the Commission will be subject to action at law. The Commission stated that no section would be approved until sanctioned by the Corporation Counsel.

E. C. Morrison, secretary of the International Acetylene Association, objected to designating the quantity of calcium carbide that should be stored in a garage, as there was pending an ordinance covering the subject. Gen. Eaton requested the protest be put in writing and submitted as a brief within ten days for the Commission's consideration. Briefs also are to be submitted by S. F. Bowser & Co., makers of gasoline storage tanks, and the Hydraulic Oil Co., regarding sections covering the storage of oil and its distribution through buildings.

In behalf of the Bicycle Dealers' Association, Mark Eisner spoke of the effect of the regulations on motorcycles and requested the Commission to separate them from the general restrictions governing motor vehicles. He pointed out the fact that if the regulations applying to garages, repair shops, etc., were made to include motorcycles, they would take away from

the members of the association a business which at best is run on a close profit. Mr. Terry also spoke on the subject. He called attention to the fact that the Legislature made exceptions at times by not including motorcycles in the motor vehicle class.

Commissioner Sidney Harris and J. Howard Wainwright, the Commission's chemist, were interested listeners. They made many notes, and occasionally Mr. Wainwright was called upon to explain some point.

After the meeting adjourned Gen. Eaton unofficially said that he thought many of the sections would be changed as requested. However, the matter will be under consideration for some time, and no immediate action is likely.

Minnesota Requires Dates on Tires.

Although it practically escaped notice at the time of its passage by the legislature, there went into effect in Minnesota on the 1st inst. a law which, more or less radically, affects all manufacturers of automobile tires by requiring that such tires shall be branded with the year of their manufacture. This novel law is as follows:

"No person shall sell any rubber tire or casing for use on motor vehicles unless the name of the manufacturer and the year in which the same was made are conspicuously and permanently marked thereon in raised type cast with the tire or casing."

The second section provides that a violation of the act makes the seller of such unbranded tires guilty of a misdemeanor.

Although all of the dealers and branch houses in the State had supplies of such unbranded tires in stock when the law went into effect, no effort has yet been made to hold them responsible for selling the goods.

Leavitt to Reopen in Los Angeles.

J. W. Leavitt & Co., of San Francisco, who are among the largest and leading jobbers on the Pacific Coast, will open a branch house in Los Angeles on August 1st. They have leased the premises 1210-12 South Olive street for the purpose. Several years ago Leavitt was a member of the firm Leavitt & Bill, which did business in Los Angeles, and when the firm dissolved he took over its interests in San Francisco while Bill retained the Los Angeles house. Leavitt & Co. now have the Overland representation for the Coast.

More Branches for Stewart Speedometer.

The Stewart & Clark Mfg. Co. has established two more branch offices—one at 1825 Grand avenue, Kansas City, in charge of Harry E. Weber; the other at 514 North Capitol avenue, Indianapolis, in charge of L. L. Banford. Both men have represented the Stewart speedometer in their respective territories for some time. The branch offices will take care of the business only in the two cities named; the territory adjacent thereto will continue to be handled from the Stewart headquarters in Chicago.



Detroit, Mich.—Williams Garage Co., under Michigan laws, with \$3,000 capital; to operate a garage and renting service.

Detroit, Mich.—Universal Accessories Co., under Michigan laws, with \$25,000 capital; to manufacture and deal in automobile accessories.

Chicago, Ill.—Edison Storage Battery Co., under Illinois laws, with \$5,000 capital. Corporators—W. C. Anderson, Wilson Critzer, Frank E. Price.

Detroit, Mich.—Hanson Die & Tool Co., under Michigan laws, with \$10,000 capital. Corporators—Frank Hanson, Fred G. Morhouse, William E. Metzger.

Chicago, Ill.—Chicago Motor Transportation Co., under Illinois laws, with \$100,000 capital; to do general automobile livery business. Corporators—John J. Nolan, Arthur Bird Haven, Peter Sinclair.

Birmingham, Ala.—The Highland Garage Co., under Alabama laws, with \$5,000 capital; to do a general garage business. Corporators—H. J. Hooper, president; G. G. Sharpe, secretary.

Louisville, Ky.—Willand Co., under Kentucky laws, with \$6,000 capital; to deal in automobiles. Corporators—T. J. Willand, 63 shares; William P. Hines, 10 shares; George Reese, 10 shares.

Rochester, N. Y.—Rochester Steel Casting Co., under New York laws, with \$50,000 capital; to manufacture steel castings. Corporators—F. C. Kimmel, P. V. C. Jackson, J. C. Emery, all of Rochester.

Chicago, Ill.—Lyra Garage Co., under Illinois laws, with \$5,000 capital; to do general automobile and garage business. Corporators—G. R. Whomes, A. Henning, L. W. Whomes, R. G. Whomes.

Bristol, Conn.—Bristol Auto Delivery Co., under Connecticut laws, with \$2,000 capital; to maintain a motor delivery service. Corporators—Thomas P. O'Brien, James J. Callahan, Thomas O'Brien.

Portland, Me.—Triplex Tube Co., under Maine laws, with \$1,000,000 capital; to manufacture and deal in tires, tubes, and other rubber products. Corporators—E. J. Conner, C. F. Tennant, both of Portland.

Detroit, Mich.—Banta Motor Truck Co., under Michigan laws, with \$100,000 capital; to manufacture commercial motor vehicles. Corporators—Jacob H. Stoerckel, George H. Banta, Hiram P. Stalker, Daniel P. Cassidy.

Kansas City, Mo.—Automobile Engineering Institute of Kansas City, under Missouri laws, with \$15,000 capital; to maintain automobile school. Corporators—William Dale, H. B. Clarkson, A. B. Clarkson.

Kittery, Me.—Owners' Garage Co., under Maine laws, with \$500,000 capital; to own, buy, and operate garages. Corporators—President, R. A. Fessenden, Brookline, Mass.; treasurer, A. P. Browne, Cambridge, Mass.

Norwich, Conn.—Storing & Leasing Co., of Norwich, under Connecticut laws, with \$25,000 capital; to deal in real estate, automobiles and do trucking, etc. Corporators—W. A. Briscoe, Charles S. Eaton, John P. Huntington.

Pendleton, Ind.—Forse Manufacturing Co., under Indiana laws, with \$25,000 capital; to manufacture automobile accessories. Corporators—W. H. Forse, Jr., R. M. Allen, Linfield Myers, Fred Lantz, D. B. Cole, Austin Retherford.

Memphis, Tenn.—Six Thirty-eight Tire & Vulcanizing Co., under Tennessee laws, with \$4,200 capital; to maintain a tire repair establishment. Corporators—Walter Hunter, George F. Pope, R. D. Foley, Robert S. Polk, C. W. Hunter.

Chicago, Ill.—Start-Lite Co., under Illinois laws, with \$10,000 capital; to manufacture and deal in lighting, controlling and priming devices. Corporators—M. M. Dutton, Abraham L. Kanagy, William W. Butterfield, Howard H. Kanagy.

New York, N. Y.—Wilson Storage Battery Co., under New York laws, with \$200,000 capital; to manufacture storage batteries, etc. Corporators—F. D. Underwood, J. C. Stewart, of New York City; D. H. Wilson, Jr., of Meadville, Pa.

New York, N. Y.—Gardner-Matthews Automobile Manufacturing Co., under New York laws, with \$100,000 capital; to manufacture motors, motor vehicles, etc. Corporators—R. E. Matthews, M. D. Schneer, of New York City; J. W. Pascom, of Brooklyn.

Kittery, Mass.—The Holmes Motor Co., under Maine laws, with \$500,000 capital; to manufacture, contract for, deal in and repair gas engines, motor cars, motor boats, flying machines and any and every other vehicle requiring or using motive power. Corporators—L. B. Swett, G. E. Burnham, both of Kittery, Mass.

Recent Losses by Fire.

Monroe, La.—F. G. Hudson's garage destroyed. Loss, \$2,000.

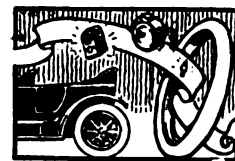
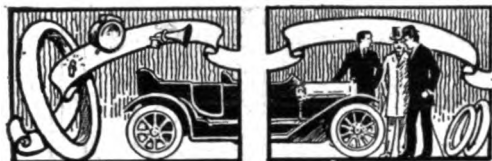
Milford, Del.—William V. Sipple, Jr.'s, garage and one automobile destroyed.

Ottawa, Ill.—B. C. Zinkler's garage burned and one automobile destroyed. Loss, \$4,000.

Brooklyn, N. Y.—Rudd's Motor Garage, 938 Bergen street, burned; six automobiles and stock of accessories destroyed. Damage, \$20,000.

Increase of Capital.

Chicago, Ill.—Auto Renewal Co., from \$2,500 to \$25,000, and changes name to Taxicab Service Co.



John Hull, Jr., is building a garage at 285 Main street, Binghamton, N. Y.

Zent Bros. are erecting a garage at Roanoke, Ind. It will be opened August 1.

Cidric George is building a garage at Walton and Maurel streets, Fitchburg, Mass.

Jackson B. Kemper is erecting a fireproof garage at Lafayette and Summit avenues, Milwaukee.

O. R. and Wayne McHenry are building a garage on Chestnut street, near Forty-fifth street, Philadelphia.

Gullison & Ries have erected a garage at Humbolt avenue and Second street, Bode, Iowa. It will house 50 automobiles.

At a cost of \$4,000, L. W. Hicks is building a two-story garage on Fifth avenue, near Murral Hill, Pittsburg, Pa.

William L. Higgins is building a garage at the corner of Thirty-third street and Washington boulevard, Indianapolis, Ind.

The Union Auto Co., of Stuttgart, Ark., has taken over the interest of F. R. and R. L. Calvert in the Calvert Auto Co., in the same city.

J. M. Poorhouse has broken ground for a new garage at Owatonna, Minn., which will cost \$14,000. It will be 44 x 125 feet, one story high, of concrete.

Collingsworth, N. J., soon will have another garage. Earl Duff is building it on Haddon avenue, and expects to open it to the public on August 1.

A two-story brick garage is being erected on Lansing street, Little Falls, N. Y., by Leslie Rathbun and Harry Champion. The building will be 57 x 100 feet.

Y. N. Ralph is erecting a modern fireproof garage for L. Willard Mulford, at Nineteenth and Norris streets, Philadelphia. The building will cost \$10,000.

M. K. Kane has started work on a new garage on Franklin street, St. Paul, Minn. It will be of brick and fireproof construction and will cost, when complete, \$10,000.

K. Williams, who is described as a retired capitalist, has embarked in the automobile business in Pittsfield, Mass. He will handle Velie cars in all of Berkshire county.

Fred Hoffman, of La Crosse, Wis., and Louis Scheppke, of Melrose, Wis., have formed a partnership under the firm name of Hoffman & Scheppke, to handle the Ford car.

Ray Leeman has been appointed manager of the Goodyear Tire and Rubber Co. at

Houston, Texas. For some time Leeman was with the Overland Automobile Sales Co., in the same city.

J. A. Pugley & Co. are erecting a new addition to their garage in Prince William street, St. John, N. B. It will be a separate three-story building on a lot 100 x 150 feet, adjoining the present structure.

Work has commenced on a two-story reinforced concrete garage on Twentieth street, near Washington street, Portland, Ore. It will be 50 x 100 feet in extent and occupied by the Elmore Automobile Agency.

A petition in involuntary bankruptcy has been filed against the Reo Automobile Co., of Washington, D. C., by creditors whose aggregate claims amount to \$545. It is claimed that the company owes \$1,000 and is insolvent.

Fred Smith is building a three-story cement garage in the little village of Hibbing, Minn. It is the third garage in the place and will be in charge of George Smith, formerly machinist of the Carlson Exploration Co.

Ground has been broken for a four-story concrete garage for the California Motor Co., at present located at 727 South Olive street, Los Angeles. The new building will be 70 x 160 feet, at the corner of Tenth and Hope streets.

The Blakeslee-Britten Co., of Newark, N. J., has opened a service building for Mack trucks, at 558 East Ferry street. The structure is 50 x 125 feet, and is designed to accommodate even the largest and heaviest trucks made.

The University Garage is the style of a building at University avenue and Marion street, St. Paul, Minn., recently erected by R. H. Deppe and C. J. Kramer. It houses Maxwell and Columbia pleasure cars and Sampson trucks, exclusively.

The Allerton Auto Co. has leased the Kidd building on Central avenue, Allerton, Iowa. They will make extensive improvements and move from their present location August 1. A complete line of automobiles and accessories are handled by the company.

The Krebs-Gotshall Motor Co., of Denver, Colo., has succeeded the Krebs-Campbell Automobile Co., the interest of Campbell having been acquired by N. S. Gotshall. The company has the Colorado agency for the Lozier and Detroit Electric cars, with headquarters at 741 Broadway, Denver.

The Stitt-Dillon Motor Car Co., of Hastings, Neb., has been dissolved, Harry Dil-

lon retiring from the partnership. W. Stitt will continue the business under the style the Stitt Motor Car Co. Dillon has opened a salesroom and garage at 29 South Eleventh street, Lincoln, Neb., where he will handle the Hudson car.

George I. Whitehead, of the Columbia Motor Car Co., and Albert D. Crossley, formerly a foreman for the Pope Mfg. Co., Hartford, Conn., have formed a partnership, under the style The Auto Shop, with headquarters at 4 Crescent street, Hartford. They will make a specialty of rebuilding and repairing commercial vehicles.

In the suit of the Union Motor Car Co., of Chicago, Ill., against the municipality, to restrain the city authorities from ousting the company from its quarters, the garage company obtained an injunction from Judge Cooper in the Superior Court, restraining the city from interfering with the company's garage at 3551 Sheffield avenue. The order of the court is temporary, pending the hearing of the company's suit.

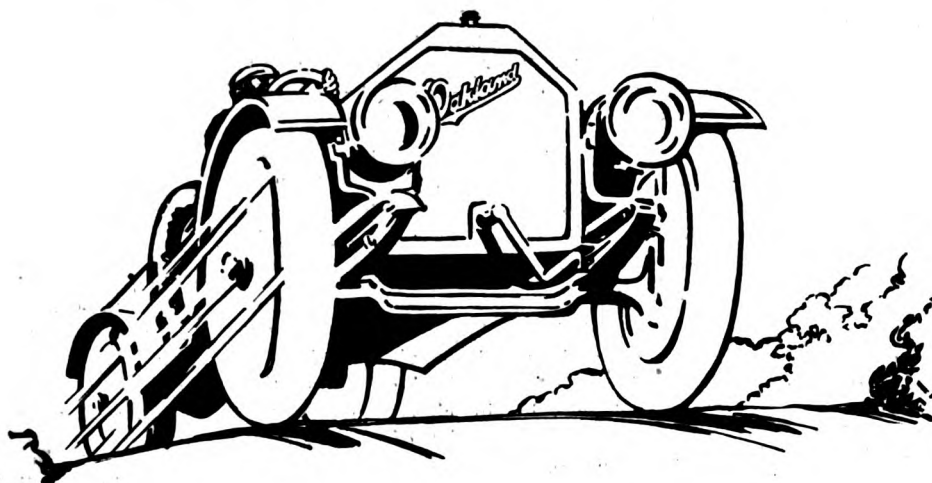
The Joseph Berning Printing Co., of Cincinnati, has applied for a receiver for the Cadillac Automobile Co., of Cincinnati, and has asked that the transfer of the company from Dr. H. C. Wendel to Thomas P. Strack be set aside. The plaintiffs allege that the Cadillac company owes them \$469 for rent and \$75 for advertising and that Wendel claims Strack owes the money, while the latter denies that he has any interest in the business.

Organized with a capital of \$20,000, the Foster Motor Sales Co. has been formed in Detroit, Mich., to take over the agency for Thomas cars. A new building of ornamental glass and metal is in course of construction at 1751 Woodward avenue, and will be ready for occupancy August 1. Until completion of this structure temporary salesrooms have been established at 472 Woodward avenue, with W. H. Foster as general manager and Joseph Chene as superintendent.

Following the cashing of a large check, Ward J. Lee, manager of the Auto Inn at Springfield, Ohio, and former secretary to Mayor Burnett, is among the "missing," and the affairs of the Auto Inn are being straightened out by, Richard Lee and J. S. Elliott. Richard and Ward J. Lee are the real owners of the garage, although it was a corporation, and conducted it as a partnership business. It is said that Lee's debts, amounting to about \$4,000, are fully covered by the tangible assets of the company.

Remy Magneto

**PROVES SUPERIORITY AGAIN IN
HILL CLIMBS AND ROAD RACES**



**Remy-Equipped Oakland Cars Have Won Eight Firsts
and One Second so Far this Season**

In the Algonquin Hill climb, in the annual hill climb of the Maine Automobile Association at Poland Springs, in the Independence Day hill climb at Columbia, S. C., and in the hill climb of the Birmingham, Ala., Motor Club, the Remy-equipped Oakland cars carried off first honors.

Not only on the beach, on track and speedways is the Remy Magneto ignition supreme, but also in road contests and hill climbs. The remarkable performance of the Remy-equipped Oaklands has again shown this conclusively.

Victorious racing drivers heartily endorse the Remy Magneto. They know that Remy construction can be depended on for perfect service under the savage conditions of racing.

Ignition devices are not always under such severe tests, but it stands to reason that a magneto made to meet such exacting demands will perform its task in everyday automobiling with highest efficiency.

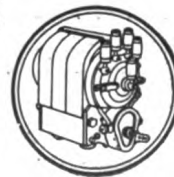
Specify Remy Equipment Upon Your Car

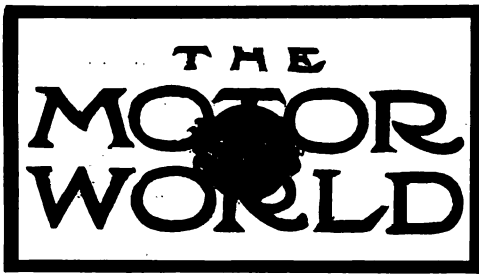
Remy Electric Company



Factories Anderson, Indiana Gen'l Offices

New York Boston Detroit Chicago Kansas City
San Francisco Indianapolis
Minneapolis: Hollis Electric Co. Philadelphia: McCullough & Son
Denver: Auto Equipment Co.
Los Angeles: Auto Motor Equipment Co.





PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

Joseph Goodman, President. R. G. Betts, Treasurer.
F. W. Roche, Secretary

154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) 10 Cents
Foreign and Canadian Subscriptions \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, JULY 20, 1911.

Why Not "Stand In" With Owners?

Undoubtedly some of the vigorous applause which greeted the emphatic denunciation of chauffeurs as a class, which was voiced by one of the speakers at the public hearing on the proposed new garage regulations by the Municipal Explosives Commission, of New York, came from the garagemen themselves, and therefore seemed to betoken a wholesome and promising state of mind. It is to be hoped that appearances are not deceiving in this case. For, measured by the New York standard, more wholesome influences are necessary in the garage business if ever the proportions of the so-called "chauffeur evil" are to be materially reduced; and the influences must be exerted by the garage owners themselves.

Denouncing the chauffeur and applauding such denunciations serve no purpose. All chauffeurs are not bad. Many of them are honest, hardworking, self-respecting men;

the honesty and industry of as many more are open to serious doubt, while a third and numerous class is composed of crooks and young men who are on the borderline of crookdom. None is more familiar with the three classes than are the garage owners. They know them intimately and well—far more intimately, in fact, than the men who pay the chauffeurs' wages. But speaking generally it is fair to say that all chauffeurs, good, bad and indifferent, honest and dishonest, look alike to the garagemen. So long as they do not steal from them or misuse their property they seem not to care. The theft or abuse of the property which they are paid to guard and care for appears a secondary consideration.

The chauffeur's mildewed threat, "I'll take my car out of here," is sufficient to bluff the garageman to a standstill, to employ popular terms. The ease with which the words "my car" fall from the chauffeur's lips is about the only humor there is in the situation. If the garageman would but permit the fact to filter through his brain that the cars in his establishment are not the property of the chauffeurs, conditions quickly would become more wholesome.

As it is at present, the average garage appears to be conducted not for the benefit of the owners of the cars but for the benefit of the men who are paid to drive them. What is needed, and needed sadly, is more garages conducted for the benefit of the car owners whose money enables garages to exist. No man who is awed by the chauffeur's threat to remove "his" car or who is afraid or backward in reporting chauffeurs' delinquencies to the chauffeurs' employers can conduct such an establishment.

It is in the power of garagemen to drive most of the grafters and crooks out of the business. They know who they are and they ought to have discernment enough to know that no employer desires to retain in his service any man who is disloyal or dishonest. The garageman knows the joy riders; he knows that, despite the laws making the offense a felony, it is being committed nightly to an astonishing extent and yet he closes his eyes to the commission of this crime and others, when a word from him would help to check and make the victimized car owners his friends for life. The garageman knows the grafters and the gamblers and the foul-mouthed gentry that assist in evolving crooks and in making garages undesirable to the neigh-

bors, but if any garageman of his own free will ever did anything to eliminate such evils his name is not easy to recall. As a matter of fact, not many garagemen know the full names and addresses or license numbers of the chauffeurs with whom they have daily dealings; such records are not considered worth while; indeed, there are garage owners who do not know the names and addresses of even the men whom they themselves employ.

"Get the money by 'standing in' with the chauffeurs," appears to be the rule that governs nine garages out of ten; and as a result, chauffeurs "own" the establishments; too many of which are mere "hang-outs"—mere breeding places for crime. Chauffeurs have become a drug on the market and at the rate at which "schools" are continuing to turn them out, conditions are not likely to become better unless garagemen reform themselves and their ways.

The chief essential is an increase of moral courage—a determination to "run" their own business instead of permitting it to be run by a lot of chauffeurs—a determination to rid their business of crooks and grafters and the adoption of a policy of "standing in" with and protecting their patrons' interests instead of "standing in" with and protecting their patrons' employes at the expense of the patrons. When they do this sort of thing the chauffeurs' threats will lose their sting, and the garageman who goes about it in the right way speedily will discover who it is that really orders a car "taken away" and who it is that discharges chauffeurs when occasion requires.

There already is a law prohibiting the demand for and the payment of commissions to such employes as chauffeurs and fixing a penalty for it, so that garage owners' excuses on that score lack merit; the grounds for refusal of such graft is ample and quickly will check the practice all along the line. And if the garageman does not appreciate that the car owner pays him to guard his property from the numerous joy-riders, instead of closing his eyes to the repeated acts of such criminals, the appreciation may be forced on him in the form of an amendment to the "anti-joy-riding" law making the garageman an accessory to the crime, which, by his complaisance and due to his desire to "stand in" with the chauffeur, he too often makes of himself.

All this is plain language, but the situation merits it. There are some garage own-

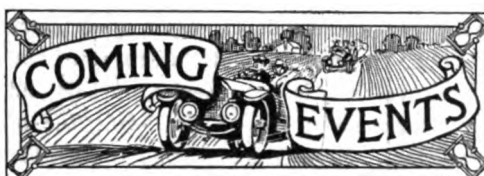
ers to whom the strictures do not apply; there are more of them to whom they do apply. For the garage business is one of the sorest spots in the automobile industry, and the deeper it is probed the more noisome becomes the odor.

Meanwhile, the car owner who desires to protect himself and his property and who has not already done so, should "put it up" to the owner of the garage in which his car is stored, by notifying him in writing that no commissions must be paid to his chauffeur and that his car must not be removed from the garage after a stated hour without his, the owner's, specific permission. That procedure will at least hold the garageman for a while and force on him a semblance of reform in spite of himself. It will also cut the ground from under the excuse and defense which he always offers when trouble comes.

The Influence of Equipment.

One of the inevitable and profitable results of the continued tendency to increase the amount of equipment included in the selling price of the car is to improve the nature of the machine. Accessories, sold first separately and later as stock equipment, gradually become amalgamated into the design of the machine until they are inseparably associated with it. Examples in point are the magneto, which now is regarded as much a part of the average chassis as is the carburetter, the engine oiling system, once an independent unit, subject to a considerable retail sale, but now thoroughly merged in the general design of the car, and the lighting system, which yearly is demanding more of the designer's attention and less that of the owner.

In the same way it may be predicted that within the space of one or two years all or nearly all cars of the better class will be equipped with compressed air systems which will be useful for a variety of purposes. For a couple of years past one or two manufacturers have been fitting their products with mechanical air pumps for tire inflation purposes, and with the recent announcements of new products the number has been increased. Similarly the first and second manufacturers regularly to adopt the compressed air engine starter as a standard feature have now been joined by two others. A couple of other makers have now adopted mechanical air pumps for supplying the feeding pressure to the



July 17-22, Milwaukee, Wis.—Wisconsin State Automobile Association's reliability contest.

July 18-Aug. 11, Versailles, France—Military truck competition and subsidy trials.

July 22-28, Minneapolis, Minn.—Minnesota State Automobile Association's third annual endurance run from Minneapolis to St. Paul to Helena.

July 22, Guttenberg, N. J.—Guttenberg Motordrome Association's racemeet on Guttenberg track.

July 22, Washington, D. C.—Racemeet at Bennings track, under the direction of E. A. Moross.

July 23, Le Mans, France—International road race for the French Grand Prix.

July 29, Philadelphia, Pa.—Racemeet under auspices of Quaker City Motor Club at Point Breeze track.

August 1, Chicago, Ill.—Reliability contest for motor trucks under auspices of Chicago Evening American.

August 3-4-5, Galveston, Tex.—Racemeet on Beach under auspices of Galveston Automobile Club.

August 7, Chicago, Ill.—Chicago American's reliability run for commercial vehicles.

August 12, Detroit, Mich.—Track racemeet, State fair grounds.

August 12, Philadelphia, Pa.—Quaker City Motor Club's annual reliability trial for pleasure cars.

Aug. 12, Worcester, Mass.—Worcester Automobile Club's sixth annual hill climb on Dead Horse Hill.

August 25-26, Elgin, Ill.—Chicago Motor Club's national stock chassis road races.

Sept. 1, Oklahoma, Okla.—Reliability contest under auspices of the Daily Oklahoman.

Sept. 2-4, Brighton Beach, N. Y.—Race-meet under management of E. A. Moross.

Sept. 4, Denver, Col.—Denver Motor Club's racemeet on motordrome.

September 4-5, Brighton Beach, N. Y.—Twenty-four hours race under management E. A. Moross.

Sept. 7-8, Philadelphia, Pa.—Philadelphia Auto Trade Association's racemeet.

Sept. 7-9, Hamline Track, Minn.—Minnesota State Automobile Association's racemeet.

Sept. 9, Bologna, Italy—International road race for the Italian Grand Prix over the Bologna circuit.

Sept. 12-13, Grand Rapids, Mich.—Michigan State Automobile Association's racemeet.

Sept. 15, Knoxville, Tenn.—Track meet, Appalachian Exposition.

Sept. 16, Syracuse, N. Y.—National Circuit track meet, State Fair grounds.

Sept. 18-20, Chicago, Ill.—Reliability contest for motor trucks, under auspices of Chicago Motor Club.

Sept. 23, Lowell, Mass.—Road races under auspices of Lowell Automobile Club.

October 7, Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

Oct. 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers' Association's open air show.

Oct. 12-22, Berlin, Germany.—International automobile show in Exhibition Hall, Zoological Garden.

fuel tanks of their products. Here are three distinct uses for compressed air, each by several reputable manufacturers deemed sufficient in itself to warrant the installation of a small compressor. That the three systems ultimately will be supplied from a single source and at no appreciable expense to the owner is by no means a rash conclusion.

Similarly, there is every reason to suppose that the development of the electric lighting system ultimately will lead to the fairly general adoption of combination lighting and ignition generators as stock features. The further application of electricity to the starting of the motor, rendering it a rival of compressed air, by no means is a new suggestion, nor it is one that has been neglected by the ever active

inventor of accessories. In other similar, though less logical ways, the fitting of the car gradually is being improved, and its convenience and efficiency increased always through the instrumentality of the accessory business.

The consequence is that the accessory maker himself constantly is kept on the alert for new improvements and new additions to car equipment. He is not permitted to rest and wax fat on the fruits of one or two inventive achievements. As a result the market constantly is flooded with new devices, the retail trade is kept from stagnation and always the motorist is offered an increasing array of varied temptations in the guise of improvements, fittings and embellishments. Such are the benefits of fevered competition.

REAL SPORTSMEN REACH LONDON

Prince Henry Tourists Reach Destination—
Anglo-German Contest Notable Event
Free from Trade Influence.

By far the most notable amateur automobile contest ever held, which was also the most notable international contest of the sort—the 1911 Prince Henry Tour—came to a close yesterday, 19th inst., in London,

tween representative Teutons and Englishmen—a good will which, as it was established between more than a hundred high military officers of both nations, may have a far-reaching influence upon the politics of the two powerful European countries.

Rarely has the little town of Homburg, in the Taunus mountains of central Germany, seen such a galaxy of famous persons as were assembled there on July 3 and 4. Emperors, czars and kings have time and again made the pretty health resort their home,

Early in the afternoon of Monday, July 3, Prince Henry and the Prince and Princess of Munster, the dukes of Ratibor and Arenberg, the counts of Arnim and Sierstorf, Sir Arthur Conan Doyle (the creator of Sherlock Holmes), Sir R. Waldie Griffith, Maurice Talbot, the Hon. E. de Grey Beaumont, Lionel de Rothschild, M. P., and many other notables, assembled in the Parkhotel to partake of a splendid champagne supper, which lasted until long after midnight. At this supper the rules of the contest were read to all participants by Contre-Admiral Rampold, secretary-general of the Kaiserlicher Automobil Club. The speaker called particular attention to the rules forbidding speeding of all kinds; to the requirement of keeping the same driver at the wheel throughout the trip (no one else in the car being permitted to touch the steering wheel), and to the necessity of obeying the regulations of towns and cities through which the cars would have to pass. Each driver was to be given thirty minutes' time after the observer had sealed the motor, etc., in which to be on his way; should he require more than this time, he would be fined 1 point. Other penalizations were provided for taking on gasoline or water outside of the control stations and for arrival after a fixed time at each control.

The start was made on Wednesday, July 5, from the Emperor Frederic Boulevard in Homburg, the cars leaving at intervals of one minute each, and Prince Henry himself showing his democratic nature by actually peeling off his coat and filling his



START OF THE PRINCE HENRY TOUR FROM HOMBURG, GERMANY

England, when the 72 participants (40 Germans and 32 Englishmen), drove their cars into the English capital and brought them to a stop in front of the main entrance to the Royal Automobile Club of Great Britain, which had been selected as the finishing point. To-day there will be held in the great banquet room of the club a monster banquet, at which the beautiful ivory trophy, donated by Prince Henry of Prussia, will be handed over to the winning club.

This Prince Henry Tour was the most strictly amateur contest ever inaugurated, not merely because manufacturers absolutely were barred from participation, but because each entrant had to own the car and either drive it himself, or have some other member of the club drive it for him; no professional chauffeur was permitted to take the steering wheel of any of the contesting cars. In order to eliminate even the slightest chance of internal friction among members owning different makes of cars, it had been decided to make no mention of the make of the cars in the official lists, and in the records to be kept of the event; the victorious club was to receive all the glory, with each and every member sharing in it to an equal extent. It was a friendly tilt—a team contest between two nations, and it did a great deal of good in promoting good will and friendship be-



ASSEMBLING FOR THE START OF THE PRINCE HENRY TOUR

but never before were the accommodations of the spa taxed as on these two days. No less than two thousand touring cars rolled into its garages and open places, while the hotels were filled to overflowing with the thousands and tens of thousands of visitors, among whom the English language was heard even more frequently than German.

gasolene tank before starting. With the exception of five limousines, belonging respectively to the Duke of Connaught, Marcus Kappel, W. Ballin Hinde, Edward Rosenberg and E. Moreau, all the competing cars were closed-front touring cars, and it was remarked at the start that automobile body construction had become so standard-

ized that British, French and German cars hardly could be told apart without a careful and minute examination. Practically all the touring cars were painted in light colors, gray and light green being preferred, although there were several white cars in the line-up. Sir Arthur Conan Doyle drove a heavy dark blue landaulet, while the Duke of Connaught had entered a light gray, inside-driven limousine. There was only one American car entered, a Cadillac thirty, driven by a member of the English team.

From Homburg the tour led through one of the most beautiful parts of Germany, made famous in motoring circles by the 1904 Gordon Bennett race, to Koenigstein, then turned north via Leun, Coblenz and Bonn to Cologne, the first night stop. Thence the route led to Munster, the second night stop, and from there in an almost perfect "airline" to Bremerhaven, where all embarked for Southampton on the steamer "Grosser Kurfuerst."

On Sunday morning the steamer arrived at the English port and the rather difficult task of disembarking took place. No serious accidents marred the transfer of the cars from the hold of the ship to dry land, and in less than ten hours all were ready to continue the trip on English soil. The start, however, was postponed until next morning, Monday, 10th, according to schedule, and Winchester, Oxford, Stratford-on-Avon and Leamington were passed in that order. At Leamington the tourists remained over night, continuing the following morning via Leicester, Nottingham, Worksop, Doncaster and Ferrybridge to Harrogate, the famous British inland watering place. Here the competitors remained until Wednesday morning.

Leaving Harrogate, a detour was made through Thirsk, Helmsley and Easingwold into the Yorkshire moors, before proceeding along the main road via Darlington and Neville's Cross to Newcastle-on-Tyne, where another night stop was made. On Thursday morning, July 13, the Scottish border was crossed and the road to Edinburgh lay before them. In the Scottish capital the whole next day, Friday, was spent in sight-seeing and fraternization with officers of the regiments stationed there. The capital of Bonnie Scotland was the most northernmost point reached by the tourists, and when the cars started again they turned their radiators toward the south, going along the west coast to Windermere, where all Saturday night and Sunday were spent in boating and bathing in the lakes that abound in the vicinity.

Due south the tour continued, reaching Shrewsbury on Monday night, then following the banks of the Severn to Gloucester and Cheltenham, where the last night stop was made. On Wednesday morning, July 19, an early start was made for the last leg of the journey, the famous coaching highway from Bath to London, which all participants reached in high spirits and without accident.

FINE RUMPUS FOLLOWS ROAD RACE

**Queer Aftermath of Bakersfield Event—
Trophy Seized by an Official and Herrick, the Winner, Arrested.**

Not all the excitement that attended the Bakersfield (Cal.) road races, held by the Kern County Merchants' Association, on Independence Day, was confined to the course. In fact, most of it did not occur until later in the evening at the Southern Hotel. Then Chairman W. E. Drury, of the local committee, made an effort to recover the \$1,000 Tevis trophy, which had been won by Harvey Herrick, driver of the National car.

The trouble is said to have been due to a confiction in the terms of the donors of the cup and the rules of the American Automobile Association. After the race had been won Referee Percy J. Walker, the A. A. A. representative, and N. R. Solomon, president of the Kern County Merchants' Association, gave Earl Y. Boothe, official representative of the National Motor Car Co., permission to take possession of the cup. Later in the evening the victor and vanquished feasted alike at a banquet given in honor of Herrick. The huge cup was the central figure.

During the progress of the dinner Chairman Drury entered the hotel, and, seeing the cup for the first time, he immediately took possession of it and rushed to his room. There he was stormed by an angry party, composed of Booth, Herrick, Dingley, Reuss and others, who demanded an explanation. Drury claimed he was acting under conditions imposed by donors of the cup, which were that the cup should remain the property of the Merchants' Association of Kern County until won three times. Although this was in contravention to the rules of the A. A. A., as had been explained to him by Referee Walker, he maintained his stand. Herrick, however, finally regained possession by giving a bond for its return on July 1 next, when it is expected another race will be held.

Although victorious in both winning the feature event and securing possession of the cup after considerable difficulty, to cap the climax, Herrick was arrested the following day, charged with technically violating the county laws by running his car over the China grade during hours not permitted by the racing commission. A county ordinance closed the grade to automobiles at all times, but the committee secured permission of the supervisors to allow certain racing cars to run over it from 4 to 6 o'clock in the morning for practice. The course is one of the roughest over which a race ever was run, in addition to being narrow it is precipitous and dangerous from beginning to end. For this reason practice permission was given only during these

hours. Herrick, it was alleged, drove over the course in the afternoon. He claims Chairman Drury gave him permission to go over the course, and he was released upon his own recognizance.

St. Louis Contest Fails to Start.

The reliability contest, which was to have started from St. Louis, Mo., Saturday, July 15, under the auspices of the Missouri Automobile Association, did not start. At the last minute it was postponed because of the small number of entries. The run was to have been made to the Southeastern part of the State, the Arcadia Club trophy being the prize at stake. The scarcity of entries was due to fear that the roads below De Soto had not been sufficiently improved to permit of safe traveling. A month ago they were impossible and impassable, and tourists through that section were compelled to go many miles off the course. Three Cadillac cars, which had been entered by the Bagnell Automobile Co., of St. Louis, made an unofficial start. William F. Bagnell drove the first car, Clifford L. Garrison the second and Dan Griver the third. The others that had been entered concluded to wait until another date was selected by the association.

Indianapolis Racemeet is Abandoned.

The racemeet which was announced to occur on the Indianapolis Motor Speedway on Labor Day has been called off. Although an application for sanction had been made to the American Automobile Association, after due consideration it was withdrawn. This was brought about by requests from the Chicago Motor Club, which already had sanction for the Elgin road races, to be held August 25 and 26, and which considered that the Hoosier event would have been a counter attraction to the national stock chassis races. The policy of the Speedway, it is announced, hereafter will be to hold annually but one big event.

Twenty-four Hours Race Called Off.

The twenty-four hours race, which was to have been run at the Brighton Beach (N. Y.) track August 4-5, has been called off by Manager E. A. Moross, on account of lack of entries. But six cars had been nominated up to July 17, although it had been specified that at least ten entries must be made by that date. This failing, the meet naturally has been abandoned for the present. Moross expects to arrange the event for September 4, after the matinee races to be held at the track are over.

Guttenberg Races Postponed One Week.

The racemeet which was to have been held on July 15, at Guttenberg (N. J.) track, under the auspices of the Guttenberg Motordrome Association, has been postponed to Saturday next, 22d inst. The promoters deemed it advisable to defer the meet in order to obtain more entries.

CLEVELAND CONTEST RUN IN RAIN

Rain Makes Mud and Mud Does Not Make Joyful Going—Nevertheless 33 Try for the Honors.

Thirty-three of the 40 entrants started in the three days' reliability contest promoted by the Cleveland News. Although rain greeted the motorists Monday morning, 17th inst., when they assembled at the Hollenden Hotel in Cleveland, it did not dampen their spirits, nor serve to daunt Mrs. F. C. Wood, the only woman entrant, who drove a seven-passenger Oldsmobile, which carried, besides herself and Mr. Wood, two other men and two women.

The objective point was Wheeling, W. Va., by way of Warren, Youngstown, Canton and New Philadelphia, thence return through Columbus and Zanesville and back to Cleveland, where the contenders arrived last (Wednesday) night, having covered a distance of 533 miles. The cars started at three minute intervals, John Rauch, driving a Krit roadster, leading, followed by Mrs. Wood.

Although rain had been falling all Sunday night and continued until late Monday morning, Youngstown, which marked the first 68 miles, was reached by noon. With the exceptions of a few punctures all the cars went through without trouble. All along the line they were greeted by the farmers and townspeople, who, notwithstanding the bad weather, lined the road.

On account of almost 20 hours of rain the roads were very bad, and travel necessarily slow.

Only 25 of the 33 cars checked in at Zanesville, as the morning run proved the hardest of the trip. The famous St. Clairsville hill, just outside of Wheeling, was the "Waterloo" for many. It is nearly five miles long and recent rains made the road in places almost impassable and played havoc with the schedule.

Some of the contenders remained in New Philadelphia, but most of them pressed on to Wheeling. The return trip was started Tuesday about noon, by which time all the stragglers had reported.

John Rauch, driving a Krit, had 17 punctures during the first day and did not reach Wheeling until four o'clock Tuesday morning. As according to the rules time is allowed for punctures, his score remained unblemished.

Bright sunshine greeted the motorists for the second day, and the trip was made to Columbus and Zanesville without undue mishaps. The roads were in bad condition on account of the rain. Wednesday the final leg of the trip was made from Zanesville to Cleveland.

The starters were as follows: C. H. Tyler, Columbia; C. G. Bleasdale, Maxwell; Dan W. Iseminger, Velie; Harry L. Lance,

Velie; Andy Auble, Oldsmobile; Fred Krum, Oakland; John Rauch, Krit; B. Sampson, Brush; Harry Kortz, Firestone-Columbus; Ira Fouché, Garford; F. B. Smith, Buick; C. D. Paxon, Jackson; L. B. Moore, Regal; G. P. Sperry, Regal; J. H. Greenwald, Marmon; H. W. Orndorf, De Tamble; T. S. Hammer, Peerless; M. Keiser, Bergoll; J. Bauer, Oakland; F. Metzger, Everett; E. B. Flinch, Chalmers; V. R. Hall, Cartecar; F. Krif, Krit; J. Adrian, Lion; J. P. Norwalk, Norwalk; J. T. Ruffel, Norwalk; F. E. Van Patten, Ford; E. C. Lucas, Mitchell; A. G. Bredbeck, Reo; Mrs. F. C. Wood, Oldsmobile; J. W. Robertson, Maxwell; P. H. Brown, Stuyvesant.

A. A. A. Punishes Imprudent Drivers.

Leonard D. Ormsby has been indefinitely suspended and disqualified by the American Automobile Association for incompetent and careless driving on the Brighton Beach (N. Y.) track July 3. He was on the track testing his Simplex before the races and had slowed down while passing the club house. H. Frey, who was testing a Mercer racing car, was behind. Following the rule that requires an overtaking car to pass on the right, Frey let his machine out to the limit. He was almost on top of the Simplex when Ormsby turned into the gate leading out of the circuit. Rather than risk a collision with Ormsby's car Frey veered still closer to the fence. In this move he was successful, as he passed Ormsby's car, but was unable to turn out of danger, and fifty feet further crashed into a fence, tearing down two posts. The car was wrecked, and Frey was buried underneath. He died a few hours later. Ormsby's A. A. A. registration card, No. 278, has been officially revoked.

Otto F. Rost and H. D. Fisher, who were reported by Referee Pardington for incompetent driving at the same meet, also have been disciplined. They have been suspended until January 1, 1912, and their cards, Nos. 695 and 518, respectively, have been revoked.

Los Angeles Offenders are Reinstated.

The backbone of the A. A. A. Contest Board wobbled this week long enough to permit the reinstatement of a batch of the offenders who seven months ago took part in the outlaw meets at Los Angeles promoted by Berna Oldfield which were designed to put the A. A. A. "out of business." The men restored to good standing are: F. H. Bechtel, Harry Buckley, William Carlson, Bert Smith and Chester Lawrence. George H. Clark, who competed under the name "Martin," and who was punished even more severely than Oldfield, asked to have his two years' sentence removed, but his application was denied. J. Alex. Sloan and Leslie Henry, who had a hand in the management of the outlaw meets, also asked that their year's suspension be removed, but no action was taken.

HORSES IN WISCONSIN'S CONTEST

Participate in First Stage and Cause Things to Happen—Four Scores Spoiled Early in Fray.

A scared team of horses for a time threatened to score heavily on the first day's slate of the Wisconsin State Automobile Association's second annual endurance run. Seventeen cars started from Milwaukee Monday morning, 17th inst., on the first leg of the journey to Marinette—a run of 190.3 miles. It was just north of Green Bay that the team entered the contest, taking fright at the National entry and so effectively blocking the way that several of the contesting cars were delayed until a disentanglement could be effected and the wagon to which the horses were hitched backed off the road. Later a kindly technical committee erased such penalties as had been caused by the blockade, thus wiping out the horses' score.

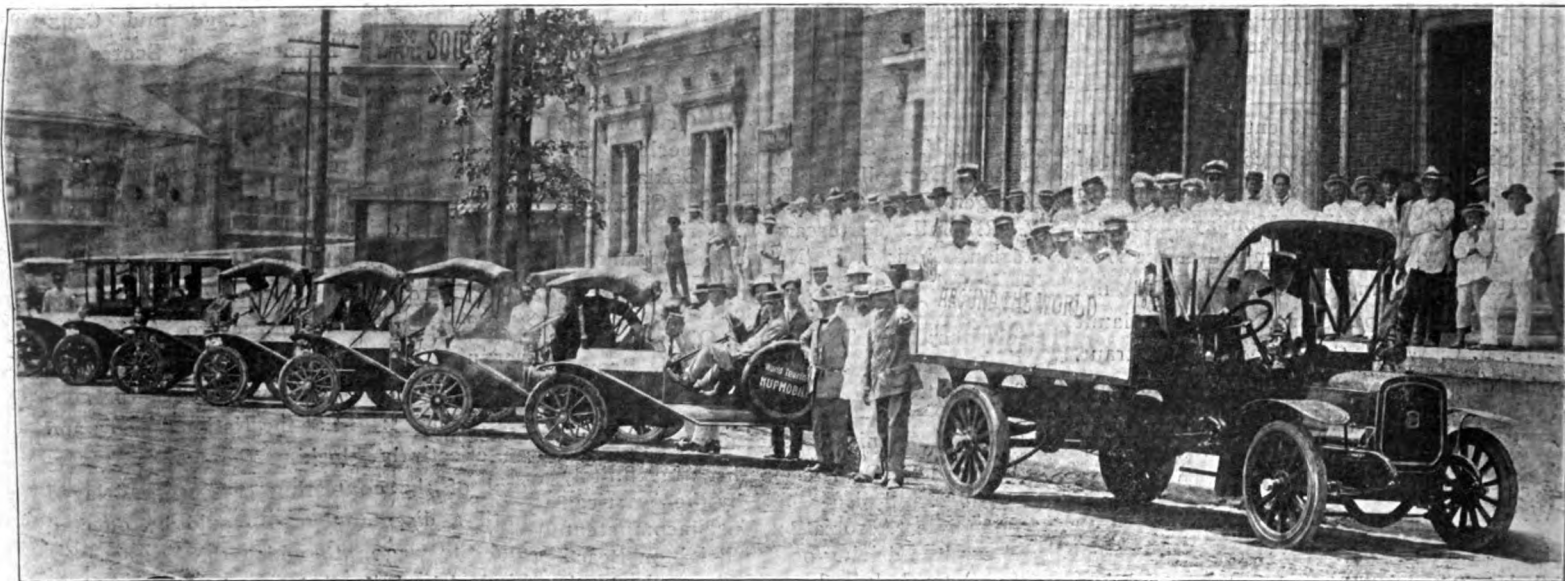
The result of the day's running, therefore, was reduced to three penalties inflicted and one held in abeyance, 13 entrants thus having perfect scores. The latter delinquent was the Auburn, which broke a rear axle in the vicinity of fateful Green Bay and had not arrived when voting ceased for the day. The National, after the episode of the horses, had rear axle trouble and lost 10 points in consequence. Taking on water involved 3 points penalty for the Petrel, in addition to 10 points inflicted for stopping the motor—13 points in all. The Franklin car was assessed 3 points for failure to stop the required three minutes at one of the controls.

August Jonas, at the wheel of a Cadillac, led the procession into Marinette, followed by George P. Hewitt and Emil Hokansen, both of whom drove Buicks. Ideal weather conditions prevailed throughout the day and good roads for a considerable portion of the route. Prolonged dry weather had left its mark in rutty and stony stretches, that made progress difficult in several spots, however, notably between Manitowoc and Two Rivers and between Two Rivers and Green Bay—mud as well as stones and ruts interfering with progress in the latter stretch.

The first stop was at Sheboygan, where the theft of the "trail" by small boys caused several contestants to stray for a few minutes. Manitowoc was the noon control, and the first car arrived in ample season for lunch, namely at six minutes after ten. Manitowoc lunches are prolonged functions, however, and in the end the checking-in time at Marinette had to be set ahead an hour in order to ensure sustenance for all.

The second day's run was to Wausau, 171 miles. The run home to Milwaukee ended last night.

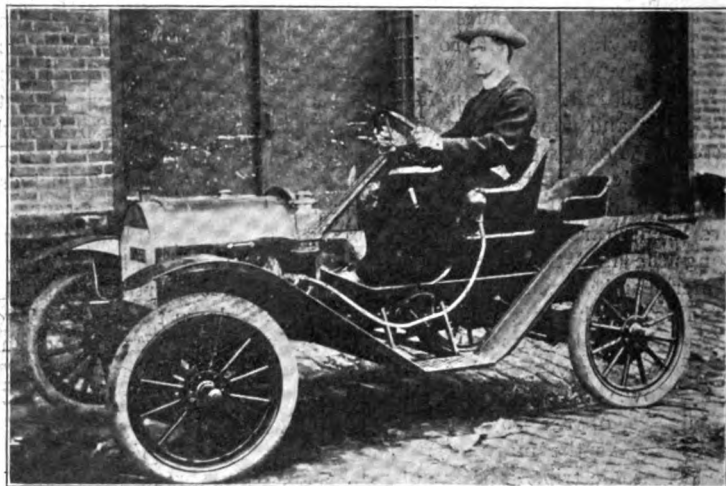
MOTORISTS AND MOTOR CARS THAT HAVE FIGURED IN RECENT HAPPENINGS.



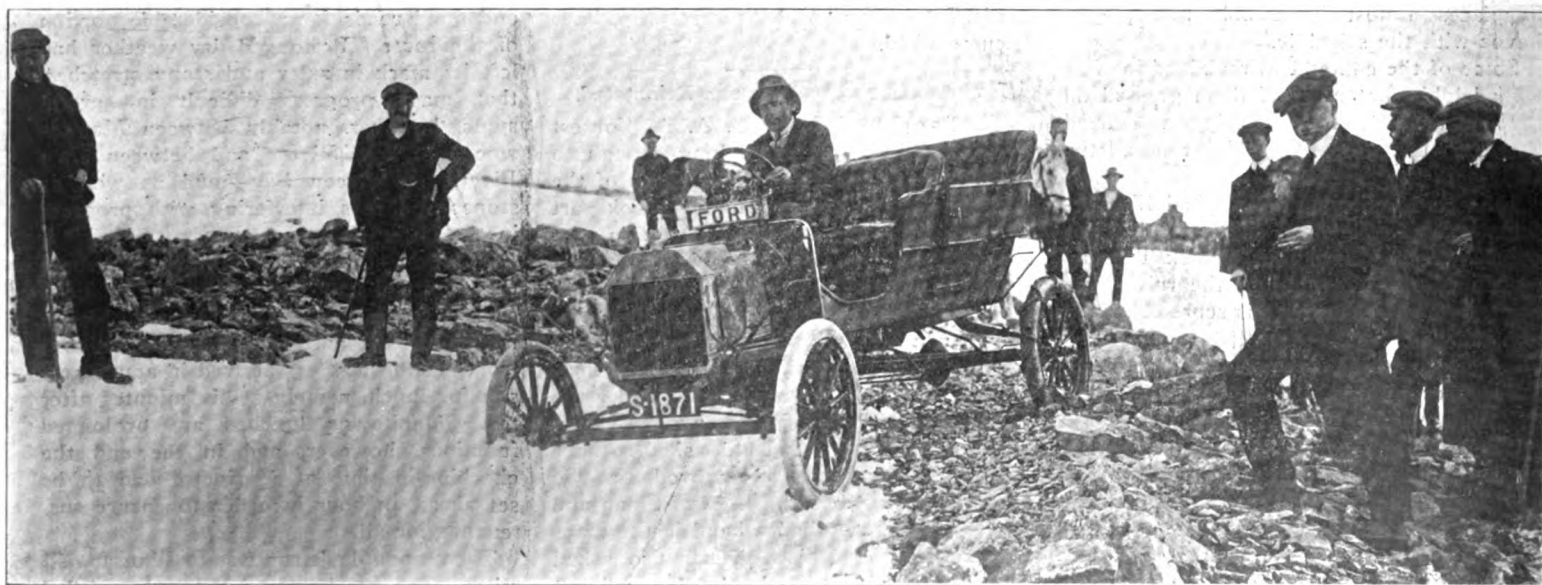
The reception accorded the globe-girdling Hupmobile on its arrival in Manila, P. I., and the band wagon which headed the parade which followed the reception.



C. W. Pool, a civil war veteran, who is driving a Brush runabout from Detroit to his home in Springdale, Ark.



Rev. Father Lynch, of Manilla, Iowa, who uses a Brush to enable him to celebrate mass in two towns each Sunday.



Harry Alexander, who piloted a Ford car to the summit of Ben Nevis, the highest point in Great Britain. The round trip occupied seven days, but only 13½ hours' actual running. A wheelbarrow is the only other vehicle that ever has "scaled the heights."

KNOX OFFERS CONTROL OPTIONS

Choice Afforded of Right or Left Hand or Central Positions—New Motor and Enlarged Equipment.

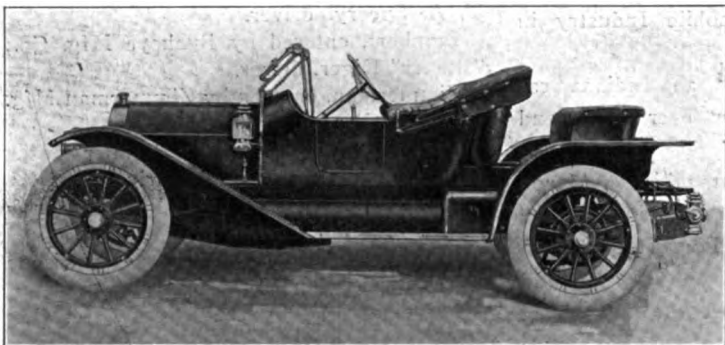
To the two models, the R and S, which it has been making, the Knox Automobile Co., of Springfield, Mass., now has added a third, which differs from former Knox practice in that it has a so-called long-

stroke engine. The S models regularly will be placed in the center of the footboard. As an option the control group may be installed on the right side, while by a further option the steering column may be mounted either on the right or left sides.

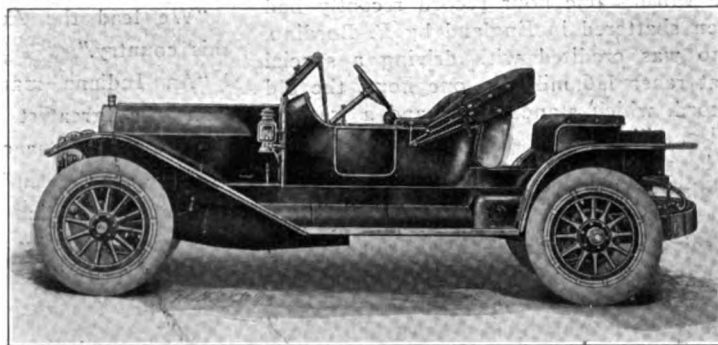
The new model has 126-inch wheel base, as compared with 117 on the R four-cylinder model and 134 on the model S now current, which is constructed in so-called raceabout form. Both the latter and the two styles of long-stroke chassis have Fisk

work which surrounds the flywheel. The propeller shaft alignment is such as to give the universal joints a minimum amount of work under normal chassis lading, while the axle, which is of special design, is of the full floating type and built in such a manner that the entire differential group can be removed without disturbing the outer shell, the spring suspension or other connecting parts.

Semi-elliptical springs are employed in front and three-quarter elliptical scroll-end



FOUR-CYLINDER MODEL R RUNABOUT, PRICE \$3,300



SIX-CYLINDER MODEL S RUNABOUT, PRICE \$4,800

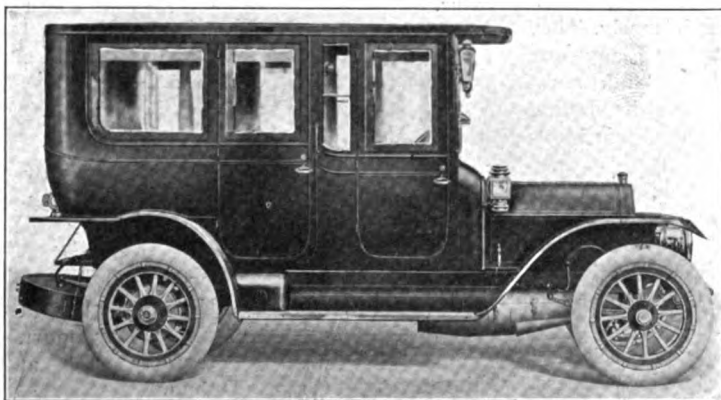
stroke engine. The excess of stroke over bore is not remarkable, as a matter of fact, the stroke-bore ratio being only 1.1 to 1, and the cylinder dimensions of the new engine being 5 x 5½ inches. As contrasted with former products in the same line, however, the new motor is something of an innovation, since the cylinder dimensions formerly favored were 5 x 4¾ inches, bore and stroke, employed on both four and six-cylinder motors. The new model chassis, R-45, as it is designated, is to be built in two styles, one a six-passenger torpedo, the body being interchangeable with

bolted-on tires and demountable rims of the same make as standard equipment, but are offered with Universal rims and clincher tires as an option. The six-cylinder model is equipped with 38 x 5½ inch tires, and the new four-cylinder with 37 x 5 or 36 x 4½ inch, the rims being suitable for either size.

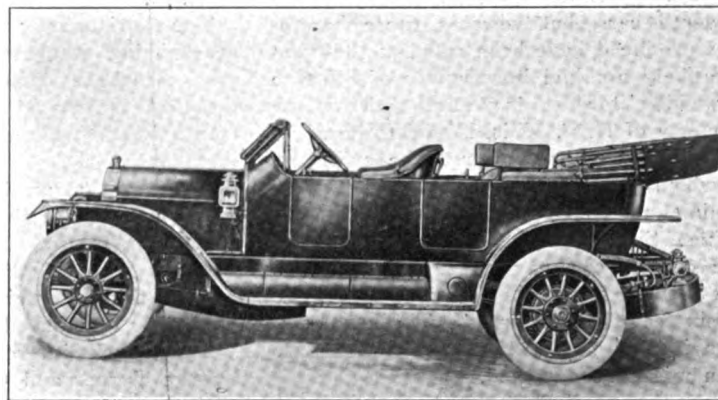
The general style of engine construction, which has been retained after several years of successful service, is that of the removable head with both inlet and exhaust valves mounted side by side in the head and actuated by overhead rocker arms. The cylinders of the two four-cylinder models

members in the rear, the latter being 54 inches long in the six and the new four-cylinder models and 50 inches in the model R. The front springs are 42 inches long on all models, or 2 inches longer than were used previously. Contracting service and expanding emergency brakes are employed, both sets being equalized.

In the matter of equipment, the Bosch magneto is used in connection with a battery and coil system giving a complete double system, including even separate switches. Tops with side curtains, windshields, speedometer and clock combina-



NEW KNOX CLOSED-FRONT LIMOUSINE, PRICE \$4,700



LONG-STROKE MOTOR R-45 TORPEDO, PRICE \$3,700

any of those regularly constructed for the six-cylinder model S, and the other a closed-front limousine.

In general, the construction of all three models remains much the same as that which has characterized the Knox line in the past. One important change has been made in respect to control mechanism, however, in that the emergency brake and gear shifting levers of the new R-45 and

are individually cast, but the six-cylinder motor is constructed with paired cylinder castings.

The three-plate type of clutch, with cork inserts, is retained, as is the unit power plant arrangement and the remarkably compact three-speed gearset. The latter is of the selective order, supported by means of arms extending rearwardly from the engine base supports and forming a stout frame-

tions, gas headlights and Prest-o-Lite tanks, combination oil and electric dash and tail lights, shock absorbers, baggage racks, robe and foot rails and full tool outfits are regularly included with each car. Another equipment item which adds a conspicuous feature to the new models is the spare tire case, which, instead of being mounted on the running board, is carried in the rear between the springs and slung beneath the

trunk rack. The general lines of all bodies are similar and characteristic. All models have high sides, the rumbles of the run-about models being the only exceptions to the rule. In the latter models also an exception is made in the mounting of the gasoline tank back of the driver's seat. In the standard touring and limousine models of the line the fuel is carried under the front seat.

Bordino Fails to Make World's Record.

Despite cabled reports to the effect that the world's one hour record recently had been shattered in England by P. Bordino, who was credited with driving a special Fiat racer 116 miles in one hour, the old record, which stands at 89 and a fraction miles, still is intact. It is held by A. Smith and was made on the Brooklands track in England with a Thames car rated at 59.8 horsepower. The confusion in regard to Bordino's performance grew out of the fact that he drove at the rate of 116 miles an hour, this speed being attained in the mile record trials held by the Yorkshire Automobile Club on the beach between Agar's Gap and Saltsburn-by-the-Sea, on the Yorkshire coast, in England, on July 1st.

How far this comes from being a world's record may be appreciated when it is placed beside Burman's phenomenal speed of 140 miles an hour made on the sands at Daytona, Florida. Though Bordino failed to establish a world's record for the mile, he did succeed in lowering the English record for that distance, his time for the flying mile, which was 31 seconds, beating the best previous record, made at Brooklands in 1909, by three-tenths miles per hour.

The makers of Fiat cars have been noted for their production of particularly high powered cars, but whereas those heretofore produced have been rated at the comparatively nominal horsepower of 200, the car which Bordino drove and which is the property of H. F. Mills, is said to be of no less than 300 horsepower. The cylinders, of which there are four, measure 190 x 250 millimeters, which is equal to 7.48 x 9.842 inches. Some idea of the really tremendous size of this car may be gained from the fact that the top of the bonnet is very close to six feet from the road. The car, however, is built on a rather shorter wheelbase than might be expected.

"Head-on Collisions" Made to Order.

Out in Los Angeles they have been conducting "head-on collisions" between automobiles as spectacular attractions, similar to the "locomotive collisions" that have been in vogue for several years. The Los Angeles "accidents" occurred on the Ascot Park track, a Mitchell and an Oldsmobile "locking horns" in one event and a Haynes and a Rambler in another. In both "accidents" dummy figures were employed to represent passengers.

TRAVELING SHOW IN FOUR STATES

Indiana Manufacturers Adopt Novel Means of Demonstrating Their Products— Twelve Days' Tour.

"Howdy!"

"We are from Indiana."

"Made in the Hoosier State; used everywhere."

"Come to the Manufacturing State for goods."

"We lead the Automobile Industry in this country."

"An Indiana man on an Indiana car won the greatest race ever held—and that in an Indiana city."

These are the sentiments which emblazon the banners which are fluttering in the breezes created by the Four-States Tour, which left Indianapolis on July 12 and which has for its purpose the advertising of the motor cars and motor trucks made in Indiana. Governor Marshall not only started the tourists, but with a numerous escort accompanied them to Eagle Creek bridge. They will return to Indianapolis at the end of 12 days, during which the States of Indiana, Missouri, Illinois and Iowa will have been visited.

The "Four States Tour" bears resemblance to a traveling automobile show and is designed not merely to display the goods produced in Indiana but to impress upon beholders the fact that according to the last census Indiana leads the United States in respect to number of automobile factories, if not in volume of output. It possesses 46 plants. Michigan has 43 and New York 34.

The tourists are traveling leisurely. They are making frequent stops and any one who evinces a disposition to "talk automobiles" is having no trouble in finding men able and willing to discuss them intelligently.

The cars that are being exhibited in this novel manner are the following:

Great Western, entered by the Great Western Mfg. Co.; Philip B. Day, driver.

Cole "thirty," entered by Cole Motor Car Co.; John Jenkins, driver.

Mais Truck, entered by Mais Truck Co.; George Turner and Cleve Jeffries, drivers.

Nyberg, entered by Nyberg Co.; Lee Berg, driver.

Whitesides Truck, entered by Whitesides Commercial Car Co.; V. F. Whitesides, driver.

De Tamble, entered by De Tamble Co.; Milt Alphonto, driver.

Marmon, entered by Nordyke & Marmon Co.; George J. Treadgold, driver.

National "forty," entered by National Motor Vehicle Co.; Howard Wilcox, driver.

Waverley Roadster, entered by Waverley Co.; J. M. Ward, driver.

Maxwell, entered by Maxwell-Briscoe Co.; Jap Clemens, driver.

Continental, entered by Indiana Motor & Mfg. Co.; James Hayden, driver.

Nyberg, entered by Nyberg Co.; John McCurdy, driver.

American "fifty," entered by American Motors Co.; H. Jeffrey Fletcher, driver.

American "thirty," entered by American Motors Co.; Charles Boyden, driver.

Lexington, entered by Lexington Motor Car Co.; A. E. Leiter, driver.

Ideal Truck, entered by Ideal Auto Co.; T. A. Speery, driver.

Lambert, entered by Buckeye Mfg. Co.; "Buster" Kiger, driver.

Zimmerman, entered by Zimmerman Mfg. Co.; Bert Farran, driver.

Premier "six," entered by Premier Motor Mfg. Co.; Walter Weidley, driver.

Continental, entered by Indiana Motor & Mfg. Co.; Paul Curlan, driver.

Maxwell, entered by Maxwell-Briscoe Co.; Howard Van Meter, driver.

Parry, entered by Motor Car Mfg. Co.; Joe Towers, driver.

Parry, entered by Motor Car Mfg. Co.; Leon Champion, driver.

Lexington confetti car, entered by Lexington Motor Car Co.; Fred N. Coates, driver.

National "forty" pilot car, entered by National Motor Vehicle Co.; John Aitken, driver.

Cole "thirty" press car, entered by Henderson Motor Sales Co.; H. G. Richey, driver.

The itinerary of the tour is as follows:

Wednesday, July 12—Night stop, Paris, Ill.

Thursday, July 13—Hour stop, from 9 to 10, at Danville, Ill., on public square. Noon-day stop at Champaign. Night stop, Decatur.

Friday, July 14—Two midday stops, Bloomington, Ill., at 10 o'clock, and Peoria at 2 o'clock. Night stop at Springfield.

Saturday, July 15—No noonday stop. Night and Sunday stop at St. Louis.

Monday, July 17—Noonday stop at Troy, Mo. Lunch served by ladies of Presbyterian Church. Night stop at Quincy.

Tuesday, July 18—Noonday stop at Keokuk, Ia. Night stop at Burlington.

Wednesday, July 19—Noonday stop at Muscatine, Ia. Night stop at Davenport.

Thursday, July 20—Noonday stop at Clinton. Night stop, Dubuque.

Friday, July 21—Noonday stop at Freeport, Ill. Night stop, Rockford.

Saturday, July 22—No noonday stop. Night stop, Chicago.

Sunday, July 23—Start at noon for half-day run through Michigan City. Night stop at South Bend, Ind.

Monday, July 24—Noonday stop at Lafayette.

The officers of the tour are: Frank E. Smith, chairman; P. P. Willis, secretary; A. E. Vinton, chairman entry committee; Fred N. Coates, treasurer.

THOMAS DISCLOSES NEW FEATURES

**Tankage System a Radical Departure; Others Not So Radical, but Interesting—
Six Cylinder Models Only.**

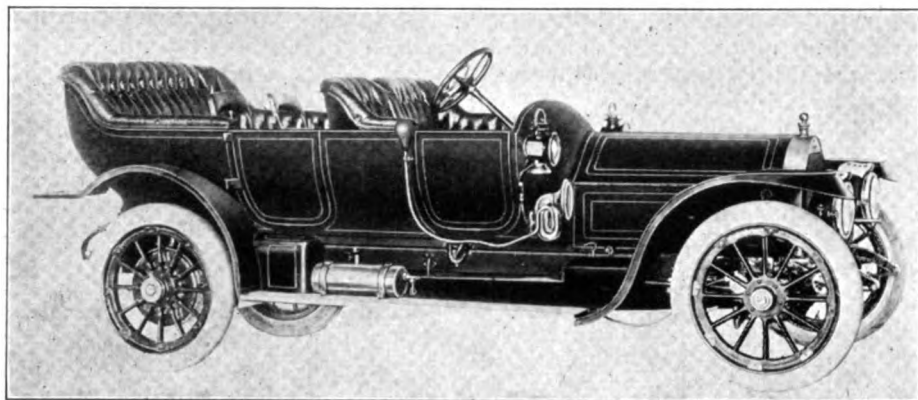
Several novel features have been introduced in the development of the new Thomas line, quite the most striking of

tor Car Co., of Buffalo, N. Y., successor to the E. R. Thomas Motor Co., is a direct derivative of the preceding model M. Indeed, it is termed model M. C., is called a "six-forty," and as but one chassis is contemplated just now, the product will be exclusively a six-cylinder one. The seven-passenger touring and five-passenger phaeton equipments, which will be the standard body listings, are here illustrated and re-

to. The gasoline tank is mounted on the right.

A point in this connection which is noteworthy is that the old-time check-valve has been dispensed with, as in a number of other instances of new car design, pure air pressure for supplying gasoline to the carburettor being obtained by means of a mechanical air-pump which is an integral part of the engine assembly. A hand pump is included in the permanent equipment of the car, but it is used only when the machine has been standing for some time with the motor out of operation. For the oil supply to the engine only a hand pump is used. The reason for this is that the lubricating system is of the automatic pump-over order, the replenishment of the reservoir in the base, therefore, only being necessary occasionally.

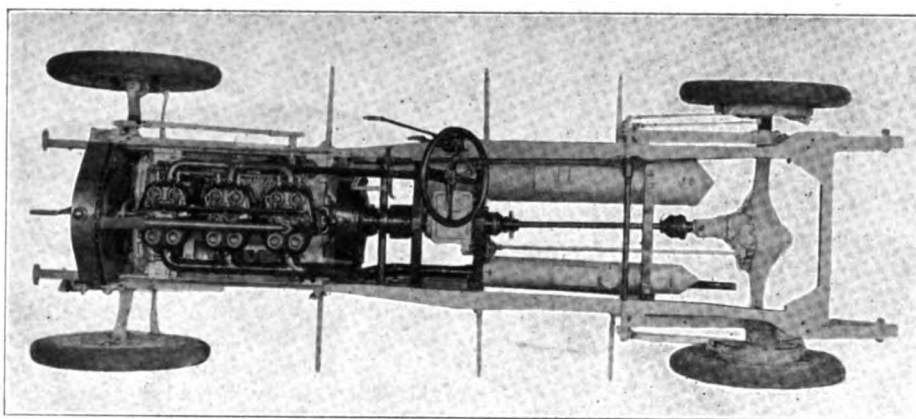
In the ordinary course of events, the oil from the base is raised to the feeding points by means of an eccentric pump, which is mounted inside the crank case and is driven by a vertical shaft which takes its motion from spiral gears on the cam shaft. Dams in the case and suitable



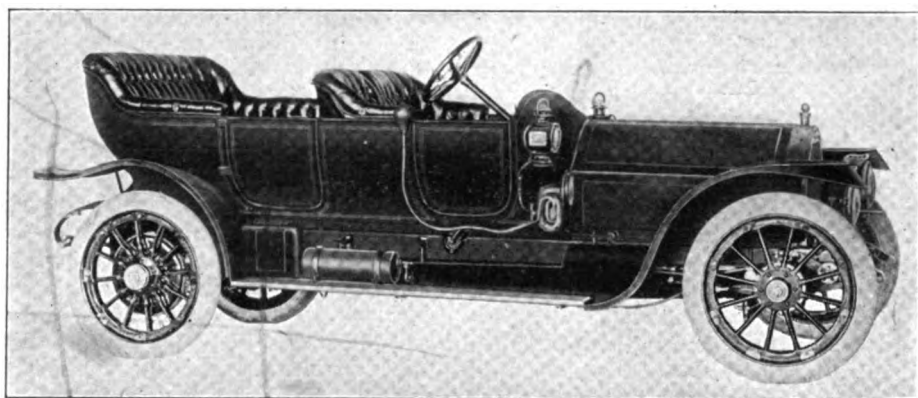
NEW THOMAS MC SEVEN-PASSENGER TOURING CAR

which, from a structural point of view, is the adoption of a pair of long cylindrical tanks for gasoline and oil, one of which is mounted inside the frame side member on either side of the chassis. To ensure a proper volume of air for feeding purposes, each tank is provided with a low dome, in principle not unlike the steam dome on a locomotive boiler. The fuel supply also is augmented by a ten-gallon reserve, which is carried in a tank under the front seat and fed to the carburettor by gravity.

This disposition of the tankage serves to utilize the space below the chassis line and at the sides which ordinarily goes to waste, and also leaves the rear of the chassis clear of the trailing and obtrusive tank which



NEW THOMAS CHASSIS SHOWING NOVEL TANK ARRANGEMENT



THOMAS MC FIVE-PASSENGER PHAETON, PRICE \$4,000

commonly is used with pressure systems. The space between the rear springs thus rendered available is used for the suspension of a special compartment for carrying heavy tools.

In general the new product, which has been brought out by the E. R. Thomas Mo-

veal certain characteristics of former Thomas models, together with just a touch of modern lines. A four-passenger surrey and two-passenger runabout also will be built. The top view of the chassis, which also is illustrated, affords a good idea of the disposition of the tanks already referred

overflows to the lower compartment of the case serve to retain the working supply of oil at its proper level. A by-pass from the pump leads to a sight-feed glass on the switchboard and indicates whether the pump is in proper working order and the oil circulating as it should.

For testing purposes two try cocks are mounted in the side of the crank case, the handles of which are brought up to a convenient level at the side of the motor. By opening one or the other the level of the oil in the case can be ascertained without the necessity of reaching under the engine. When the oil falls so low that it ceases to run out of the "safety" cock, only a sufficient supply for 30 to 50 miles further running is left in the base. It is then necessary to open the proper cock and pump air into the oil tank under the chassis, when a fresh supply will be forced into the base, the correct level being reached when oil overflows from the cock marked "full."

Rather a novel feature in addition to the tankage is the arrangement of the switch-board, which is in reality a false dash, mounted on the back side of the dash cowl and disposed within convenient reaching distance of the operator as he sits in his seat. On the right side of the board are located the battery and magneto switches, the air pressure gauge for the gasoline tank, the hand pump for forcing oil from the storage tank to the engine base, the air pressure gauge for the oil tank and the oil sight feed glass. The dash cowls are fitted with ventilators, which may be opened or closed at will.

Another innovation of a minor though not inconspicuous sort is the shrouding of three of the four spokes of the steering wheel for about 3 inches inward from the rim. The effect is to produce a better grip for the hands than ordinarily is secured. The fourth spoke, which is vertical when the car is running straight, is left plain and is reserved for mounting the button for the electric horn.

Summarizing several of the detailed changes that have been made in the chassis: The front spring horns have been raised, all spring shackle bolts have been fitted with compression grease cups, the starting crank bracket has been arranged to hold the crank upright when not in use, the front axle, which is of very heavy section, now is made of nickel steel. Timken roller bearings have been applied to the top of the steering spindles, the new wheel spindles being of unusually large diameter. A straight cross steering rod now is used. A new form of radiator fan has been adopted, together with a spring tension device for retaining the belt tension. The radiator filler cap, like the hub caps, is in the form of a globe, symbolizing the 'round-the-world' exploit of the Thomas car in 1908. The cap is closed and fastened down by means of a special locking device.

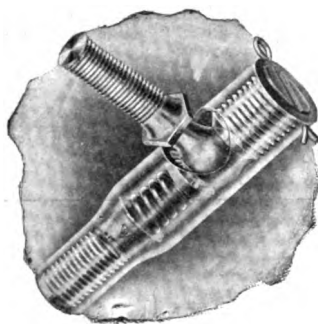
The universal joint between the clutch and change gear now is protected by a removable aluminum shield which has the advantage of retaining the grease with which the joint is packed and also of catching any oil which might exude from the front transmission bearing. The pinion shaft of the rear axle is retained in a horizontal position, the effect being to afford the same angularity to both universal joints in the propeller shaft and thus equalize the motion of the driving bevels. A tubular member is employed to take up the torque reaction of the rear axle, its forward end being cushioned on springs in a special form of housing. The springs are supported loosely on the rear axle, so that none of the torsional stresses are imparted to them. The heavy full-floating rear axle is fitted with nickel steel sleeves on which the Timken roller wheel bearings are mounted.

The general specifications of the chassis are: Motor, six-cylinder, T-head cylinders

cast in pairs, $4\frac{1}{4} \times 5\frac{1}{2}$ inch dimensions. Ignition, two independent systems, with two sets of plugs, Bosch magneto, batteries and commutator-distributor with single vibrator coil. Clutch, three-plate type, with brass floating disk fitted with cork inserts. Change gear, three-speed selective. Brakes, mounted on rear axle, 17-inch drums, $2\frac{1}{2}$ inch face, total area 525 square inches. Springs, semi-elliptic in front, set 1 inch back of center to improve steering qualities; rear, three-quarter, elliptic, upper quarter mounted in frame by original clamping means. Wheel base, 134 inches.

Ball and Socket Joint for Fittings.

Embodying the principle of the well-known B. & S. steering rod connections, the Billings & Spencer Co., of Hartford, Conn., has just brought out a miniature



ball and socket joint for use in connecting the adjusting rods of carburetors, ignition apparatus and the like. The connection, which is made only in one size, which is threaded for the $\frac{1}{4}$ -inch A. L. A. M. standard rod, is composed of four essential parts, namely, the case, the two-part socket—one part being backed by spring tension and the other being threaded and pinned in place—and the ball member. The purpose of the spring backing for one side of the socket obviously is to retain proper tension on the joint, automatically take up for wear and so prevent lost motion. The complete joint is listed at 25 cents.

Austria a Market for American Cars.

"While the people here are not familiar with all of the various makes of American cars, yet they have confidence in the Americans as builders of durable machinery, and admire its neatness," writes the American consul at Prague, Austria.

"This is not such a good market as America, but when the French, German, Italian and Belgian manufacturers think the field worth invading, why not the enterprising American manufacturer? There are not so many people financially able to purchase cars, but it is conservative to state the present number of cars (over 600 now registered in the Prague police district) will be doubled within a year. American manufacturers have already lost valuable time. It is conceded that the American car has made more improvement in construction

within the past few years than has the European car.

"If there are articles of merchandise which cannot be sold by the English printed catalog and letter route, these are automobiles and motor boats. The dealers want technical information concerning the construction of cars and drawings illustrating the workings of the motors, their construction, etc. Catalogs are not sufficiently explicit. Terms of sale should also be stated; the usual discounts here are 20 and 10 per cent. off.

"If manufacturers are not willing to send cars on consignment or give satisfactory credit, one dealer has suggested he will have one of the leading Prague banks guarantee the purchase price of three or four cars for exhibit purposes. He further assures me that there will not be any question about the ultimate sales of the cars. Aside from the American cars being able to compete in price with other foreign makes, they would have the further advantage of not being handicapped by any local prejudice, as is the case with some foreign cars.

"The import duty on automobiles is: For those weighing under 880 pounds, \$30.45 for each 220 pounds; from 880 to 3,690 pounds, \$24.36; from 3,690 to 7,040 pounds, \$20.36; and for those weighing over 7,040 pounds, \$12.18 for each 220 pounds."

German Magneto Industry Unsettled.

As a result of overproduction and price cutting the magneto industry of Wurttemberg, Germany, is reported by American Consul Edward Higgins to be in an unsatisfactory condition just now. Although the United States offers the principal export market for the product of the four local concerns, the manufacturers of the Bosch, Mea, Eisemann and Ruthardt, the shipments steadily declined during last year. The total for 1910, as a matter of fact, was only \$1,440,357, as compared with \$2,045,313 in 1909. The establishment of the Bosch factory in this country and the proposed establishment of a branch factory for the production of Mea magnetos is thought to explain the decline.

Saving Tires by Reversing Them.

While many motorists are aware that the rear tires of a car carry a greater weight than the front tires, and are taking care to change their rear tires to the front, when they become worn, thereby considerably prolonging the life of the tires, the United States Tire Co. is pointing out that there are few who realize that a similar change from the right side to the left, and vice-versa, is advantageous. As a rule, the tires on the right side of a car receive harder usage by coming into contact with the curb, and also receive a harder abrasion every time a car is turned out of a rut to pass other vehicles. To prolong the life of tires, it is therefore well to reverse them occasionally, placing the worn side nearest the car.

MORE MODELS IN THE HUDSON LINE

Will Comprise Four Cars, Including a Speedster—New Bodies and Larger Wheels—Price Advanced \$350.

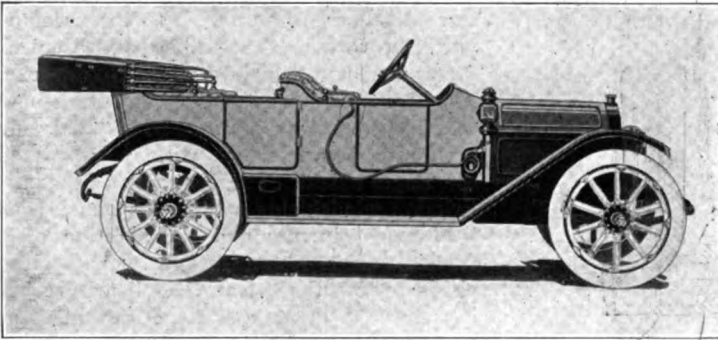
Generically the new Hudson line, which has just been announced, will be the same as its immediate predecessor, in so far as the model 33 is concerned. Specifically it will be considerably different. Even more specifically, while the general construction of the chassis is to be continued without material change, the line as a whole will be

top, windshield and front and rear license hangers—these items previously not having been included in the list price. The regular outfit also includes such details as three oil and two gas lamps, full kit of tools mounted in a metal box on the left running board instead of under the hood, metal body construction with aluminum running and toe boards and heel plate and complete fittings, including coat rail, tonneau foot rail and coco-fiber floor mat.

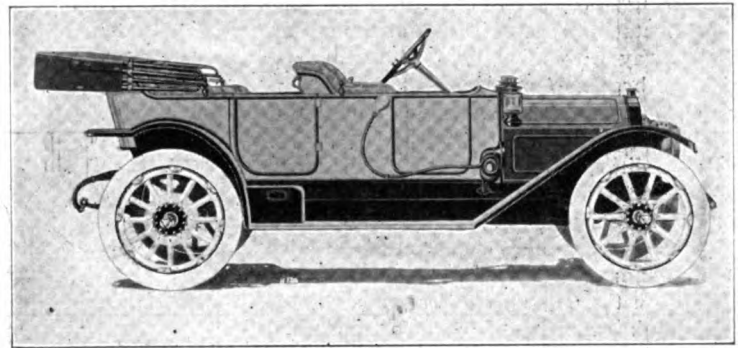
The racing model is also equipped with a Warner 100-mile an hour speedometer, has magneto ignition only and a special form of storm apron, instead of the top and windshield equipment. Otherwise it is

are driven by a short transverse power shaft located at the front of the motor. Cooling is secured by means of an improved type of reinforced vertical tube radiator; the fan which is formed integrally with the flywheel also serves a useful purpose in inducing a draught of air to pass over the entire external surface of the engine after leaving the cooler passages.

The clutch is of an improved multiple disk pattern, fitted with cork inserts and mounted in an oiltight compartment of the flywheel. Ball and roller bearings are now used in combination in the three-speed selective change gear. The general arrangement of the gearset is the same as was de-



NEW HUDSON 33 FOUR-PASSENGER TORPEDO



HUDSON 33 FIVE-PASSENGER TOURING CAR.

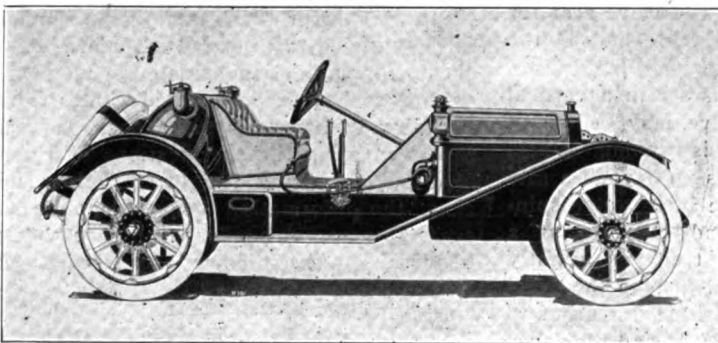
modified by the introduction of new body styles, while an addition to the line is to be the "mile-a-minute" roadster—a two-passenger racing machine of sportive appearance and somewhat modified construction and equipment, as compared with the remainder of the line. Quite the most important feature of the announcement which the Hudson Motor Car Co., Detroit, Mich.,

equipped in the same manner as the other types. Electric lights with storage battery equipment, shock absorbers and—for all except the racing model—speedometers are listed as extras. All front wheels, however, rather suggestively are equipped with a gear for driving the Warner autometer.

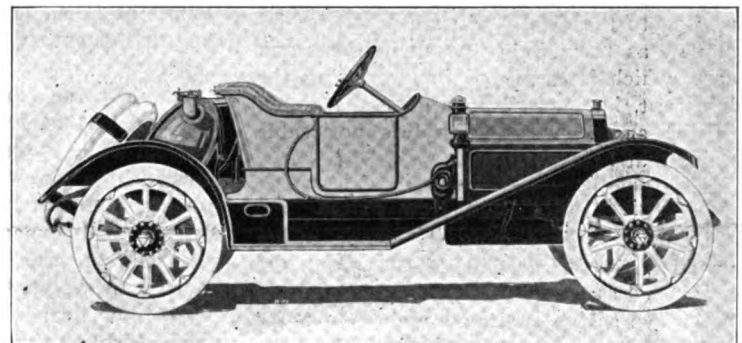
As heretofore, the construction of the power plant is of the unit type. It is sup-

veloped at the time the first Hudson cars took the road and is noteworthy by reason of its rigidity; the gearset being mounted in a short stout housing which is supported directly by the two rear arms of the engine base. Alignment between the crank shaft and transmission driving and driven members, therefore, is absolutely assured.

The propeller shaft, which is equipped



THE NEW MILE-A-MINUTE ROADSTER



THE TWO-PASSENGER ROADSTER WITH EQUIPMENT

has just made is that the price will be advanced from \$1,250, which was the listing of the previous model in touring form, to \$1,600. It is further noteworthy that the price is to be uniform for all types, and that it includes a full measure of equipment.

The four styles now listed are the five-passenger touring car, four-passenger torpedo, two-passenger roadster and "mile-a-minute" roadster. The standard equipment includes the Bosch dual ignition system, Prest-O-Lite gas tank or generator, 4-inch tires and demountable rims, mohair

ported at four points on the main frame and is of particularly neat construction. The motor is of the block type, its cylinder dimensions being 4 x 4½ inches, bore and stroke; it is cast in block with the valves placed side by side on the left of the car. The valve stems and springs are contained in a dust-proof housing, all other working parts being similarly enclosed. The engine auxiliaries are mounted with extreme care in order to provide a maximum of efficiency and still insure proper accessibility. To this end the magneto and the water pump

with but one universal joint, is enclosed in a torque tube, which is especially fitted to resist the encroachments of dust; indeed, in developing the new model chassis special pains have been taken at every point to prevent the creeping of grit through the exposed surfaces where shafts issue from the various enclosures of the different parts of the mechanism. The rear axle is of the full-floating type, adjustable as to its bearings and made with extra heavy shafts and bearings. The shafts are supported by a combination of double row ball and Hyatt

heavy duty roller bearings. Double brakes are used on the rear wheels, the drums being 12 inches in diameter and the bands 2 inches wide. The service brake, which is actuated by foot pedal, in the conventional way, is of the external contracting type, while the hand operated emergency brakes are of the expanding order.

The suspension is of the semi-three-quarter-elliptic combination. The front springs are 37 inches and the rear ones 47 inches long; the latter an inch longer than formerly. Both front and rear spring members are 2 inches wide. A special provision for continued efficiency in the service of the springs is the adoption of bushings in the spring eyes. By renewing the bushings the effects of wear in the connections are done away with at slight expense and the risk of breakage and consequent need of renewal of more expensive parts thus avoided.

In addition to the adoption of larger wheels and tires on all models except the racer—which runs on 32-inch wheels—the wheel base has been lengthened an inch. The standard tread is 56 inches, but an option on the 60-inch tread is now granted. The tank capacity of each of the three standard types likewise has been increased, the touring car now being fitted to carry 21½ gallons of gasoline, the torpedo 17½ gallons and the roadster 30 gallons. The racer has the same tank capacity as the roadster. In addition to other general improvements, including in some instances the employment of better materials and more painstaking manufacturing methods, considerable pains have been taken to silence the action of the mechanism. The enclosure of the valve action naturally tends to render the motor extremely quiet running, but attention to the details of such parts, for instance, as the plunger pump in the crank case, which is employed in circulating the lubricant, has served to reduce the sound of the engine to an even less noticeable point than before.

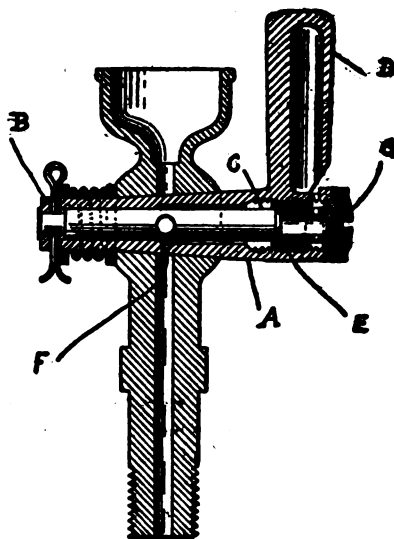
White's "Six" and New Prices.

By way of increasing the scope of its product, the White Co., of Cleveland, O., has added a six-cylinder model, which is to be known as the White 60, by reason of its rated horsepower, and which will be the third gasoline car in the line, the other two being the 30 and 40 models, respectively. All three chassis are of the same general design, which is to say that the new six-cylinder motor is rendered conspicuous by the adoption of a single block casting for the entire cylinder group. The long stroke being retained, it is held that the new car should prove especially economical of fuel. It will be produced with seven-passenger torpedo body equipped with 37 x 5 inch tires, to sell for \$5,000. The 30 model will continue to sell for \$2,250. The 40, however, will be slightly advanced in price, the five-passenger arrangement listing for \$3,300, instead of \$3,000, and the seven-

passenger for \$3,500, instead of \$3,200. A variety of enclosed cars, ranging up to \$6,000 in price, also will be produced. The 20 and 40 horsepower steamers also will be continued.

Whistle that Indicates Overheating.

To prevent internal combustion motors from overheating, through one cause or another, is the aim of a new instrument brought out by the Shore Instrument & Mfg. Co., of New York City, and styled the Sico Overheating Alarm. Fundamentally the device is nothing more nor less than an ordinary pet cock, but embodied in it is a sensitive thermostat which is fitted inside of the conical valve spindle, partially extending into the handle, which



is an integral part thereof. The steel rod, C, is securely fastened to the brass valve spindle at B, while E is the valve seat for the supplementary steel valve and D the whistle.

Normally the handle is set in a vertical position so that the valve may be closed as usual while the motor is running. When, however, the motor heats up beyond a safe running temperature, the brass valve spindle, A, will expand and elongate at a quicker rate than the steel pin, slightly opening the valve, C, and causing the whistle to blow by permitting the hot gases to escape through the by-hole, F, and the valve, C. The plug, G, can be adjusted for giving the overheat alarm at any desired temperature, or for taking up possible wear in the spindle. A turning of the handle, D, over a slight angle will close the by-pass hole, F, and stop the whistling.

Central Motor Markets Larger Taxicab.

Working on the idea that many taxicab enterprises are unprofitable and that the nature of the equipment used has a good deal to do with the difficulties that are experienced, the Central Motor Co., one of the United States Motor Co. subsidiaries, which recently has produced in the Titan a very light machine obtainable either for

taximeter service or parcels delivery, has now turned its attention to a vehicle of more substantial construction. This is the Central taxicab, a machine built to sell for \$1,750, and fitted with special regard to the character of the service intended. Basing depreciation on a three-year life expectation, it is figured that the average proprietor can well afford to "write off" \$50 a month for renewals and still leave himself an attractive margin for profit, which policy the low price quoted is calculated to permit.

Eagle Making a New Windshield.

Frank F. Weston, general sales manager of the Eagle Company, Newark, N. J., started this week on a visit to the automobile factories in the Middle and Central States and will return in about four weeks. The Eagle Company is bringing out a new "rain vision clear vision" windshield, for high priced cars, which will be known as the Eagle shield. The company's Standard Friction windshields will be continued, with 1912 improvements and the addition of a vertical clear vision and a zigzag clear vision model, the "clear vision" feature being that the upper and the lower glass at the edges where they join have no brass framing to interrupt the view. Weston's trip is for the purpose of acquainting the motor car manufacturers along the line with the details of the new offerings that are being made ready.

Data Sheets that Help Engineers.

Taking a cue from the plan of the Society of Automobile Engineers to embody its standard information and data on automobile design in the form a loose-leaf pocket-book, several manufacturers have reduced the essentials of their catalogs to similar form and have prepared standard data sheets for circulation among the members of the society. The United States Tire Co. already has sent out a series of six sheets covering the specifications of Hartford and Morgan & Wright solid tires and rims, the information being complete in every respect. A similar set of five sheets likewise has been issued by the Hyatt Roller Bearing Co.

New Material for Tops and Upholstery.

Among the many manufacturing developments which have been encouraged by the increasing importance of the automobile industry is that of the various special fabrics which are coming into use for upholstery and top covering purposes. A recent addition to the list is Quennard's fabric Crystol-Mohair, a heavy water-proofed material designed especially for tops, which is being marketed by William L. Barrell & Co., of New York City. The material, which has a fine surface and is unusually pliant, is made in a number of colors and designs. It is described as looking exactly like mohair but wearing like leather.

NEW TRUCK WITH A NOVEL ENGINE

Comes from Milwaukee and is a "Big Fellow"—Unusually Slow Speed Motor and Radical Valve Mounting.

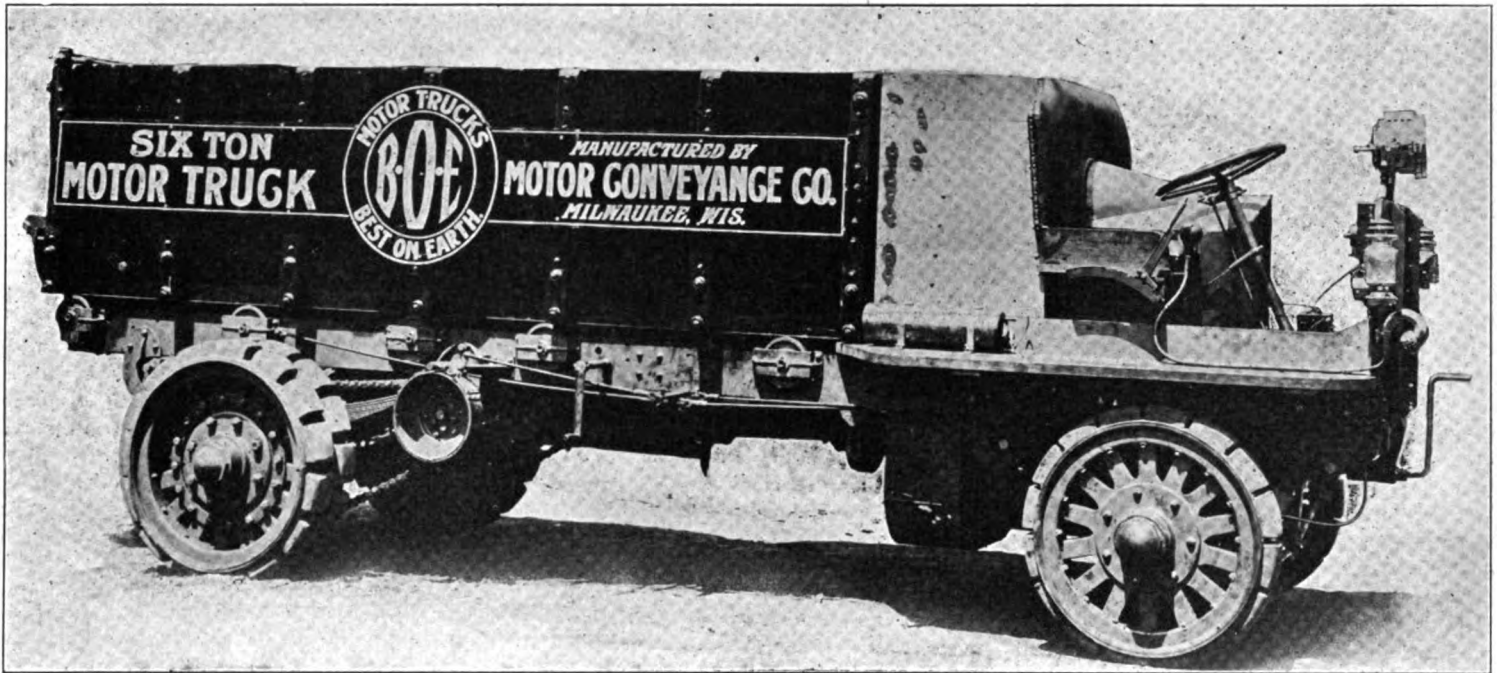
After a corporate existence of nearly a year, the Motor Conveyance Co., of Milwaukee, Wis., has announced the details of its six-ton B. O. E. truck, thereby revealing the fact that considerable independent

Chas. F. P. Pullen, cashier of the German American Bank, of Milwaukee, is president of the company; Frank M. Davis, president and majority stockholder of the Davis Manufacturing Co., builders of automobile and marine motors, is secretary and treasurer; I. W. Davis, superintendent of the Davis company, is vice president, and G. B. Louderback, formerly sales manager of the Buckeye Manufacturing Co., has assumed a similar capacity in the new concern.

In the development of its line, which

illustrated, is of $5\frac{1}{4}$ x 8 inches bore and stroke, and develops its rated output at 600 revolutions per minute. Like the remainder of the vehicle, it is of original construction, the work of building it being carried on in the company's own shops.

As the illustrations show, it is of the four-cylinder, four-cycle, vertical type, built with cylinders in pairs and widely separated. Advantage is taken of this unusual feature to mount a transverse auxiliary shaft between the cylinder groups for the

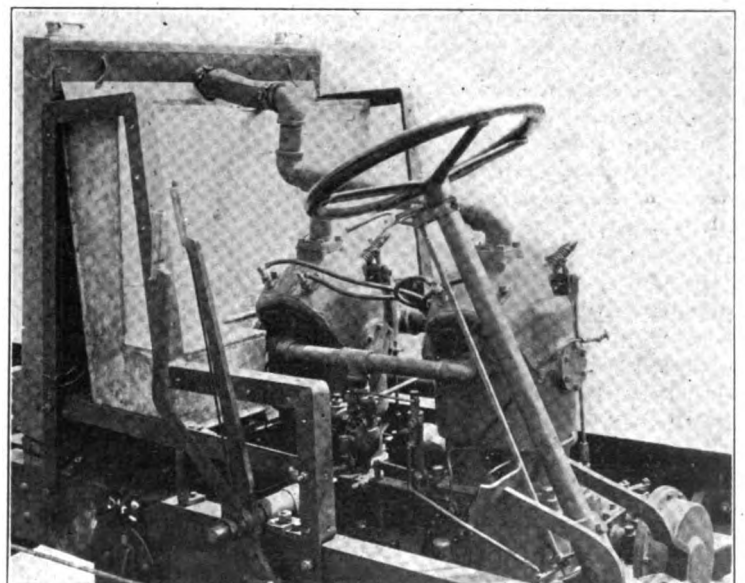
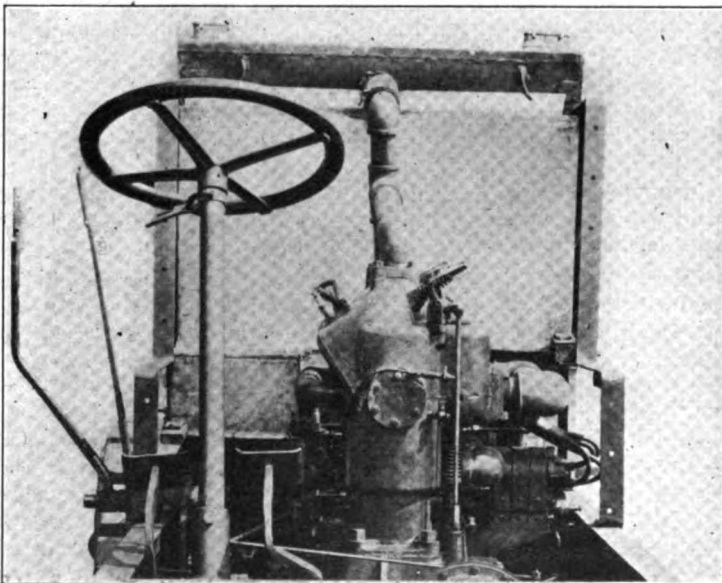


NEW B.O.E 6-TON TRUCK WITH DUMPING BODY—A NEW MILWAUKEE PRODUCT

thought and effort has been embodied in its construction. The initials "B. O. E." symbolize "best on earth," it may be explained, and the Motor Conveyance Co. has been launched with the ambitious intention of making good the implied assertion.

ultimately is to be extended to the production of three-, five-, six-, and ten-ton trucks, a new style of heavy-duty motor has been evolved, which is quite distinctive in its way. The particular model which is installed in the six-ton truck, which is here

purpose of driving the magneto. The most radical feature of the engine, however, is the cylinder design. The exhaust valves are placed in offset pockets on the left side of the vehicle in the conventional manner. The inlet valves are in the heads, but are



VIEWS SHOWING PECULIAR CONSTRUCTION OF THE $5\frac{1}{4}$ x 8 INCH B.O.E ENGINE

inclined at an angle of $52\frac{1}{2}$ degrees and also, instead of being parallel in the same plane, are angularly disposed. The result is that when they are removed the cylinder interiors and piston heads may be readily got at to remove carbon deposit. The rocker mechanism and closing springs of the inlets necessarily are a little out of the ordinary, their construction and arrangement being indicated in the illustrations.

The lubricating system used is a special development for this motor, its special feature being the use of a pressure chamber to equalize the flow through the various feed pipes. A gear pump is employed to deliver oil to the chamber from a five-gallon reservoir, whence it is distributed by internal leads to the bearings. A single lead is taken to a sight feed glass, which indicates the condition of the system to the operator at all times. Double ignition, a standard form of float feed carburetter and thermosiphon cooling, are other features.

The motor is mounted in the fore part of the chassis, but not immediately at the front. The radiator is carried behind the driver's seat, a blower integral with the fly wheel serving to ensure proper air circulation. Such is the arrangement that the engine casing, or hood, comes between the two seats that are arranged for the driver and one passenger, sufficient space to cross in front of the engine being left behind the dash.

The master clutch is of the Hele-Shaw type, and drives a three-speed gearset mounted below the chassis in the usual manner. Final drive is effected by means of double side chains. The normal speed of the vehicle is ten miles an hour, the motor being under governor control at all times. The contracting band service brake is of 14 x 4 inch dimensions, while the emergency brakes, which are of the expanding type and mounted in the rear wheels, are of 20 inches diameter and 5-inch face.

The running gear equipment is particularly heavy. The springs are of semi-elliptic pattern, the gear members being supplemented by a bearing spring to carry the load when the truck is in service. The front springs are 48 x $3\frac{1}{2}$ inches and the rear members 56 x $3\frac{1}{2}$ inches, respectively. The main frame is built of 8 x 3 inch structural steel channel. The front axle is of $4\frac{1}{4}$ x 4 inch section and the rear axle is $3\frac{3}{4}$ x $4\frac{1}{2}$ inches. The wheels are, respectively, 36 and 40 inches diameter, front and rear, both being 6 inches wide and shod with block tires. Equipped with driver's cab, horn, lamps and tools, the truck is built to sell for \$6,000.

"Girl Wanted" Sign that Failed.

The girls of Greeley, Colo., are not given to joy-riding, at least with strangers, as George Horn, of that city, has discovered. Horn is the owner of a large touring car, and a few days ago when he grew lonesome, he attempted unsuccessfully to se-

cure a congenial companion to make a trip with him. Telephoning to the homes of a number of friends, in order to make up a party, and finding them all away from town, he conceived what he considered a novel idea. Having a large sign painted containing the words "Girl Wanted," he hung it on the automobile. Then driving the machine to the busiest corner in town he let it stand with its silent invitation, while he retreated to the shade of a doorway, where he could see and not be seen. Girls young and old, blond and brunette, glanced at the sign from the corners of their eyes, but none stopped or seemed to possess the courage to step into the machine for the proffered ride. After waiting the greater part of the afternoon Horn was compelled to "go it alone."

Three-Wheeler Declared an Automobile.

According to the decision of Judge Walter H. Clark, in the Police Court of Hartford, Conn., the three-wheeled Motorette, manufactured by the C. W. Kelsey Mfg. Co., is an automobile and not a motorcycle. The question arose when Howard W. Nichols, one of the employees of the company, drove a Motorette at night without a tail light. Kelsey, in arguing with Judge Clark, declared that in the automobile law of the State, passed in 1909 and now in force, tail lights are required only for motor vehicles of ten horsepower or more; that the Motorette has but seven horsepower and is therefore exempt. When a fine of \$5 was assessed upon Nichols, Kelsey notified the court of his intention to appeal the case to the Superior Court. Meanwhile the new law passed this summer settles the question by defining a motorcycle as a vehicle having only "two wheels in contact with the ground."

Tourists' Trunks Prey for Thieves.

Touring motorists will do well to see that the automobile trunk is securely attached to their cars. As a rule the trunk rests on a rack in the rear of the car and is fastened by straps, which are very insecure against thefts. Since automobile owners have been locking tire envelopes to the running board or on the rear of the car the petty thief has been to a great extent frustrated. At this season, however, when tourists are numerous, reports reach police headquarters in various cities almost daily concerning the loss of automobile trunks. The thieves generally cut the straps when an automobile is held up at a railroad crossing or when the occupants are dining. Such was the manner that a trunk belonging to Patrick T. Powers, of New York, was lost one Sunday night while going from Atlantic City, N. J., to Jersey City. The trunk was in its proper place at Freehold, N. J., but was missing when the automobile reached the Powers home. At the crossing of the Lackawanna Railroad on the Hackensack Meadows the machine was held up for some minutes, during which time it

is thought the thief cut the straps, which permitted the trunk to fall into the roadway.

New State Law Cuts St. Louis's Income.

Owing to the presence of a "joker" in the Missouri automobile law, which is largely a copy of the New York law, and which will go into effect on the first of next month, the city of St. Louis stands to lose about \$20,000 next year in registration fees. This unwelcome discovery was made by the license collectors when they examined the license provisions of the state law, which limit the fees to be collected by any city within the state of Missouri to the amount charged by the state. According to the new law, the fee for registration of automobiles is from \$2 to \$12, while the city of St. Louis had been collecting a flat rate of \$10 for every car. The number of automobile licenses issued during the past year has been 4,632, which, at \$10 each, brought in a revenue of \$46,320. The new rate will cut this sum almost in half, for it provides that machines of less than 12 horsepower will pay \$2; from 12 to 24 horsepower, \$3; those from 24 to 36 horsepower, \$5; from 36 to 48 horsepower, \$7; from 48 to 60 horsepower, \$8; from 60 to 72 horsepower, \$10; and above 72 horsepower, \$12. Another section of the state law provides for the display of a single license number issued by the state, and this provision eliminates the city license tag entirely, which is another effect not foreseen by the city authorities.

State's Attorney Stops "Just ice Mill."

Charges of a serious nature have been filed against Fred Beiswanger, a justice, at Niles, Ill., and an indictment has been handed down charging him with malfeasance in office. He was well known to Chicago tourists as the "Terror of the Milwaukee road," on account of the high-handed methods used in his court to levy heavy fines on passing automobilists. A number of complaints had been made by his victims to State Attorney Wayman, and the latter started an investigation. During the latter it was brought out that the justice refused to hand over any records of the proceedings in his court in a certain speeding case when a change of venue had been obtained by defendant's counsel, and that this defendant had been arrested on fraudulent charges; there were also similar complaints in several other cases. It was also charged that on several occasions he held court in a saloon, operating what is termed a "justice mill"—arresting passing motorists on trumped up charges, fining them heavily and then forgetting to render a proper account of the fines and proceedings. When court officers established a search for the "justice" he could not be found, although he had been holding court up to a few hours previous to the handing down of the indictments.

MORA'S NEW WAGON WELL COOLED

Its Cooling System a Special Feature and the Reasons Therefor—Other Characteristics of the Newcomer.

Up to this time it has been noticeable that the development of the commercial vehicle as a mechanism distinct from the pleasure car has proceeded more rapidly in the direction of large vehicles than it has in the field of the light delivery wagon. That condition now is rapidly being remedied, however, and the smaller commercial, built especially for commercial purposes, is constantly becoming better known. One

of natural circulation of the water, thus dispensing with a circulating pump and also permitting the motor to be run for considerable periods without danger of overheating. This disposition is made with the ultimate service of the machine distinctly in mind, it being considered essential that a delivery wagon be so constituted that the engine can be run continuously irrespective of the speed of the machine, or even of its movement, in order to obviate the need of frequent cranking and likewise to prevent high temperatures.

The flywheel, being constructed with integral fan blades and mounted at the front of the engine, is the only active member required for the circulation of air through the radiator. Lubrication is effected by a

inclination of the user. When solid tires are used, the specifications call for 36 x 2-inch equipment in front and 36 x 2½ in the rear. For pneumatics, the 34 x 4 size is recommended by the manufacturer, on both front and rear wheels.

The frame, which is of heavy section pressed steel, is 140½ inches long and 34 inches wide. Semi-elliptic spring suspension is employed, the front members being 39 inches and the rear ones 42 inches long. Both front and rear springs are 2 inches wide. Special steel axles of 1½-inch section are employed, the frame and running gear construction being unusually solid for a vehicle of less than one-ton capacity. The wheel base is 94 inches and the tread is of standard dimensions. The regular body equipment is that of the conventional open tray with flared sides. The loading space is 78 x 44 inches. A light stake body having an 84 x 44 inch platform, as shown in the picture, may be had as an option. Solid tires, three oil lamps, a horn and kit of tools are the regular equipment which are offered at the list price, which is \$1,000.



MORA 1,500-POUND POWER WAGON WITH OPEN STAKE BODY

of the more recent additions to the class, and one which obviously employs no details "borrowed" from the light passenger car, is the Mora, which has been developed by the Mora Power Wagon Co., of Cleveland, Ohio.

Embodying the essential useful features of opposed motor in front, left hand drive with center control, heavy framing and low suspension, the machine, which is here illustrated, obviously belongs to the working class of motor vehicles. It is rated at 1,500 pounds carrying capacity, has a 16 horsepower two-cylinder, four-cycle motor which is water cooled, and it is geared for a normal speed of 15 miles an hour when running on high gear. As its name suggests, it has been designed by the originator of the Mora car, which was a not unfamiliar product of an earlier period of the industry.

The motor is of 4½-inch "square" dimensions and of generally standard characteristics. It is placed in a most accessible position in the front of the vehicle, covered by a 15-inch hood and placed directly behind a square-tubed radiator of unusually large capacity. Large jackets surrounding the cylinders and liberal pipe areas permit

combination of splash and force-feed systems. Ignition is carried out by a low-tension magneto and coil.

The transmission unit is concentrated on the countershaft and consists of a planetary change gear embodied in a single housing with the differential. Two forward speeds and a reverse are provided, and they are controlled by means of two pedals and a lever, in the usual manner. The high-speed clutch is of the multiple-disk type, running steel to steel in an oil bath. The change gear unit is fully enclosed. It is mounted on ball bearings at the sides of the differential and on Hyatt roller bearings on the countershaft supports. Final transmission to the wheels is carried on by means of double side chains. The combined radius and distance rods, which are of I-beam section, also serve as brake hangers and anchors. The brakes are of the internal expanding order, mounted on the rear hubs, and are actuated by means of a pedal and emergency lever arrangement, in the conventional manner.

Provision is made for the use of either solid or pneumatic tires, according to the demands of the service in which the individual machine is to be placed, or the in-

Where One Motor Replaced 14 Mules.

From times immemorial the mule has been touted as "the surest-footed quadruped in the service of man"—but in at least one instance it had to give way to the still "surer-footed" motor car. Of course it was not on the mountain roads, where mule hoofs will continue to obtain better holds than any anti-skid tire ever invented, but in the ordinary farm work of James Thompson, of Pendleton, Ore. He recently found that the ground was too slippery for the 14 mules which were furnishing the power for his barley chopper, whereupon he rigged his 28 horsepower Franklin car and dispensed with the mule power entirely. The power of the automobile is applied by means of a frame and jackshaft bearing three wheels. The main axle is lifted from the ground to one end of the frame, and from each rear wheel of the automobile a belt is run to the wheels on each end of the jackshaft. In the center is a smaller wheel from which runs a belt to the machinery which is to be operated.

Long Trip Forced on Big Truck.

Being refused transportation by water and by land, on the steamers of Lake Erie and the railway from Detroit to Cleveland on account of its great size, there was nothing left for a five-ton Sampson truck consigned to the Cleveland Milling Co., but to make the 250 mile run under its own power. It accomplished the task last week without any trouble, reaching the Ohio city on the third day. En route, and to crown the unusual troubles confronting it, when it arrived in Sandusky there was no garage door big enough to admit the truck, which had to be left in the open street in front of a garage over night.

THE GARAGEMAN AND HIS TROUBLES

Many Things that Cause His Profits to Shrink to Small Proportions—Help Problem a Serious One.

"The garage business in New York is becoming worse every year," vouchsafed a man intimately identified with one of those establishments. "What with high rents and expenses, and the various rules and regulations prescribed by the Municipal Explosives Commission, the Fire Department, the fire underwriters and the various other boards that supervise buildings and conditions, there hardly is a good living, much less interest on the investment, for the man who owns a garage, at least one that is located in the automobile district of New York.

"In the first place, the Fire Department orders that certain precautions be taken, and the Board of Fire Underwriters, which limits the amount of insurance that may be carried, directly ignores the instructions of the department and lays down other requirements. For instance, the Fire Department insists that, in addition to fire extinguishers, each floor of a garage shall be provided with a certain number of fire buckets containing water, while the underwriters require a certain number of buckets containing sand to be placed on each floor in addition to the water buckets ordered by the Fire Department. The result is that a garage owner must keep on hand two sets of buckets, the ones containing water being of no use, as it is well known that the surest way to scatter a gasoline fire is to throw water on the blaze.

"Again, the Fire Department permits the delivery of gasoline from a portable tank, containing fifty gallons, but the underwriters say this tank cannot be used unless it is kept outside the building; and they also permit gasoline to be served only from a safety can approved by them. In addition, hardly a month passes but orders are given affecting the electric wiring or requiring that a change be made in the kind of extensions or trail lights that are permissible; and it is a difficult matter to work on the motor of an automobile without an extension light, unless the car is put in the repair shop. Of course, many chauffeurs never put the car in the repair shop, as they understand just what to do to a motor to keep it in good condition, and frequently valves are cleaned or changed between calls, whereas if the car is put into the shop the owner would not be able to use it for a day or two, and also would be charged 75 cents an hour for work his employe could accomplish in a few minutes.

"However, these are only a few of the drawbacks, and if the worry were confined to obeying the various regulations to sat-

isfy each department, the garage manager would be able to get along. Each year, however, manufacturers are enlarging their cars, while the owners are demanding lower storage rates. A few years ago comparatively few cars had a wheelbase of more than 84 or 96 inches, and at that time the owner did not hesitate to pay \$35 to \$40 a month for storage; now few cars are made with a wheelbase of less than 102 inches, and the vast majority range from 110 to 144 inches. These cars take up more floor space in the garage, but the owners object to paying even \$30 a month for storage. This storage charge, it must be understood, means that the car must be washed every night, all the metal work polished and the interior cleaned before the automobile is taken out the next morning. When cars were smaller they had less brass and other metal and the work of keeping them clean was easier. The garage, therefore, made a profit, but with the larger cars and smaller storage charges the garage owner is compelled to retain a greater force in order to have the cars ready for use in the morning, as most of the work is done between sunset and sunrise.

"There is another feature of the garage business of which few automobile owners know anything—the matter of help. Of course, every housekeeper and every business man has trouble in securing the proper kind of help, but all their troubles rolled into one are nothing compared with the difficulties, in this respect, encountered by the garageman. In the first place, as I have said, the important part of the work is done at night; therefore the garageman must have an efficient foreman to look after this branch, for a manager cannot be on duty at all times. But even when a foreman is secured, the length of his stay is uncertain, as a good night foreman is hard to keep, because the other garages are after him. By a good foreman, I mean not only an honest man but one who can accomplish the work at the smallest possible outlay. There are numerous leaks that occur at night, and a number of garages have been closed by the extravagances of the night force. There was a time when the night force would work twelve hours, and work faithfully, but those days have passed, and often extra help must be taken on at midnight if the work is to be finished by next morning.

"The important part of the night work is washing the cars, but not every man who applies for the position of washer understands the work, and nowadays those who are competent will not wash more than ten cars each, when a short time ago they were glad to wash twenty at the same pay. In addition to soap and water, kerosene must be used, as it is not possible to remove grease from the wheels and fenders without it; this is due to the use of oil on the roads. In order properly to clean the average car it must be gone over three times; first with kerosene, then with soap

and water, and finally with clear water, thereby consuming at least an hour. After being washed and chamoised, the car is put in its place on one of the floors and the metal polishers take it in hand. This requires another hour. The interior cleaners spend a half hour or so finishing it up. A garage handling fifty cars a night requires at least four washers, the same number of pushers, six polishers and four interior men, in addition to the day and the night foremen and the day force, which latter should comprise about four men. The day men serve the gas, oil and necessary extras, in addition to keeping the building clean.

"The actual cost of keeping a car, at least to the garage owner located in the automobile district of New York, is about \$22 a month. Few can be kept for less, and this figure does not include the cost of insurance and other incidentals connected with the upkeep of the building in which the car is housed. These expenses must come from the small profit made on gasoline, oil and other accessories that all garages must handle in order to come out anywhere near even. On these the average chauffeur expects and receives a commission, thereby still further reducing the profit.

"These are but a few incidentals connected with the financial end of the business, but the real worry, as I have said before, is with the help, which, as a rule, frequently changes; the manager never can count on his full night force turning up for duty. The washers, as a rule, do not bother about notifying an employer that they will not be on hand, and take a holiday without permission, knowing at the time that they will have to look elsewhere for work.

"As a matter of fact, no one connected with the place is supposed to get a holiday. All days are alike, and a week's work, whether day or night, includes the entire seven days of the calendar week. This is one of the drawbacks, and the pay averages from ten to twenty dollars per week for each employee. Should the garage pay more the management would be obliged to charge more for storage, etc., but those prices cannot be raised. As it is, the average automobile owner wants first class service, but wishes to pay about \$20 a month for it. Frequently one will remark: 'Oh, it is not necessary to wash my car more than once a week, as I do not go out very much and never take it out in bad weather,' which sounds very nice until the car leaves the garage with the slightest imperfection, when the owner promptly complains. However, the owner's story is a different matter; but if anyone has an idea that a garageman's life is a bed of roses, made up of joy-rides and 'easy money,' he should spend a few days or nights in a garage to discover how far wrong people's ideas can go and how much trouble the garage owner runs up against in that short time."

Future of the Truck Business; the Two Avenues Open

Competition is the basis of comparison. Not until the development of modern business methods made it necessary for men to prove their own methods superior to those of others did it become important to contrast the cost of performing the same operation in different ways. Not until there arose an actual competitor for horse haulage in the form of the motor truck did it become useful to know what local transportation, by whatever means, really cost. This is the real reason why the commercial vehicle cost question, which in the mind of the layman probably smacks of uninteresting statistical research, scientific management and other dry-as-dust topics, rapidly is coming to the front.

Haulage cost is the nervous system of the motor truck propaganda; it must be studied and comprehended in all its ramifications if the useful work of the system itself properly is to be carried forward. Unless the nerves are healthy the work of the muscles will be impaired, and the effort of motor haulage demands the sensitive oversight that can result only from the timely and exact information which a thorough knowledge of costs alone can yield.

It is difficult for the man in the street to catch the drift of discussions of the cost question, or to sense the impending change that is hovering over the industry. That it would be useful to know the exact outlay essential to proper automobile operation he is perfectly willing to concede, but it is not so apparent to him that continued study of the cost problem may be destined to result in a wider separation, not merely between commercial and pleasure car methods of production, but in the development of two classes in the field of commercial vehicle manufacture itself.

As nearly as it is possible to define it, the dividing point is the stock car, and the line of demarcation that which divides the maker who builds machines merely to be sold, and thereafter turns his attention to the building of other machines, from the maker who builds machines to perform a definite service and whose interest in his product is retained throughout its useful life. The future of the industry thus may be said, perhaps a little fancifully, to portend an important distinction between two such classes of manufacturer.

One class will manufacture a product for ready sale, figuring on a certain percentage of new customers each year and also on an equally important and ever increasing percentage of resales to old customers—their own or someone else's. As is the case at present, the complete motor vehicle will constitute the unit of production. Such

manufacturers also will recognize as an annoying sort of tag-end to their business the need of supplying customers with parts to replace those that have been worn out or broken in service. Needless to add, this portion of the business will be conducted with ill concealed reluctance, as being unprofitable, generally speaking, complicated, and a point of attack for every dissatisfied customer. Even where parts replacement and even inspection service are undertaken in a business-like way, it will be as a measure of self-protection rather than a remunerative undertaking in the meaning of becoming in any sense a productive occupation.

To draw an extreme and rather striking contrast between manufacturers who conduct their operations along these lines and those of the second class, it may be said that the latter will become essentially producers of automobile parts. Parts production, as the staple of their business, will be carried out with the highest degree of economy possible and with the distinct purpose of securing a reasonable profit on each integer, regardless of the method by which it is marketed. The distribution of such a varied product will be carried out in two ways; first, by the assemblage of parts into complete cars; and second, by the sale of individual parts for purposes of replacement to users of the complete machines. The purchase of one or more trucks, therefore, will not represent the complete sales transaction, but merely will be the initial delivery under an agreement lasting over a period of several years. Even without such an agreement, the principle involved will be much the same, as the commercial vehicle builder of the future will come to reckon on his parts business as a distinct and useful element in his activities—absolutely essential to their furtherance.

Such a contrast, based on the conduct of the automobile business of the day, of course, must appear strikingly radical, if not improbable. That it is the inevitable and logical outcome of the trend of the moment and likewise the objective toward which the latest theories of commercial vehicle practice are converging, a brief consideration will show. It is simply a question of service. If the builder of motor trucks elects to market not only the vehicles, but, in a way, the product of their labor, he must contemplate a fair and open treatment of the replacement problem and also a considerable demand for parts.

Further, he must base his production plans on a careful forecast of the expected demand for replacements on behalf of every

car in use. This implies a close study of depreciation under all sorts of service conditions. Indeed, it is from a review of present ideas on the depreciation question that the vision of the motor truck maker of the future as essentially a wholesale producer of parts as well as an assembler of such parts into complete machines arises. Yet such an outlook is possible only when depreciation is considered in its broadest application, not in the general sense in which it is frequently accepted. Without attempting to lay down an exact definition, which appears to be greatly needed, it is at least not difficult to show the error involved in the common interpretation of the term.

In suggesting that his customers allow 20 per cent. per annum for the decreasing value of their vehicles, the manufacturer at once expresses the conviction that under average conditions the useful life of each and every one of the machines he builds is limited to five years of service. Yet he knows full well that whereas many machines will last even longer in usable shape, others will become practically useless in less time, because of abusive treatment. Five years, therefore, is an average life expectation, but not a representative average.

Similarly, where depreciation is based on mileage alone, although a more just approximation may be obtained, no account is taken of loading, highway or speed conditions under which the machine is operated, and, therefore, even a mileage allowance is an average based on a reckoning of a wide range of good and bad performances. In either case, one class of users will be asked to charge too much to depreciation and another class will be asked to charge too little.

The principle of the thing was explained at some length in a recent issue of the *Motor World*, wherein the views of several well known automobile engineers were discussed by way of indicating the newly aroused interest in motor vehicle costs and the newest thought of the industry on the subject. In substance, the composite idea there expressed was entirely at variance with the common notion of depreciation. It depends on the general hypothesis that the average motor truck, while in service, will be kept in at least fairly good running condition. This means that worn or broken parts will be repaired or replaced as occasion demands and that the actual value of the entire machine as a haulage implement will remain practically constant. Actually it will remain so only so long as it is not permitted to deteriorate through neglect.

But for the sake of argument it is perfectly safe to assume that the prudent operator, at least, will preserve his equipment as nearly as possible in a condition of maximum efficiency so long as it is in use.

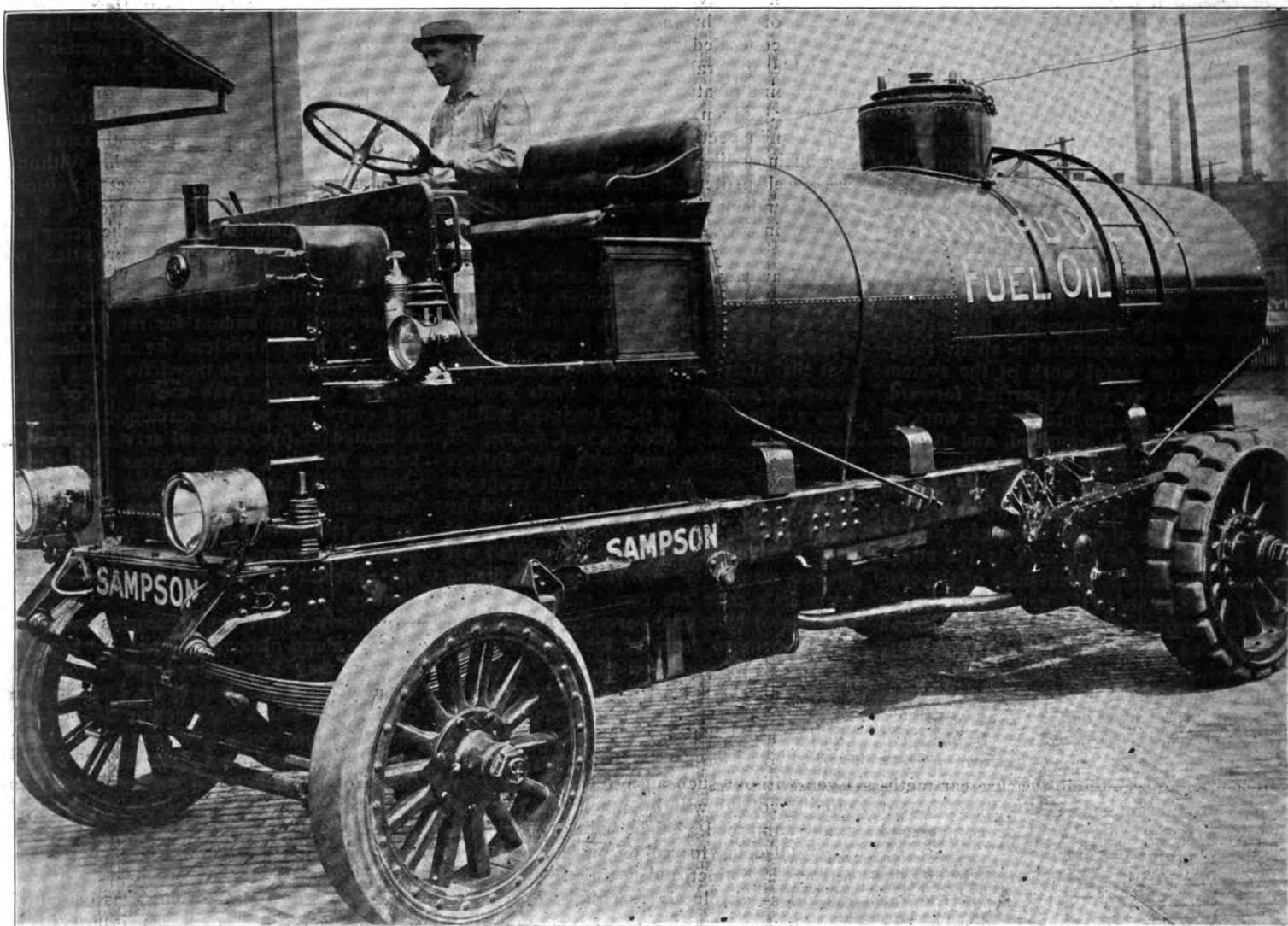
On that assumption, the actual deterioration in value of the equipment will be represented by its market worth at any time—still on the basis of its being “kept up.” In other words, its present worth will be represented, not by its second-hand value at

dividually, or as an element of a recognized group or assemblage of parts.

A good set of springs, for example, should last almost indefinitely, barring breakages, but spring shackles and bolts may be expected to require replacement, on account of wear, at the end of a certain period of use. The life of these particular parts, as a matter of fact, is measured by the number of oscillations under load. Actually, legitimate wear bears a certain, more or

need not entail periodic replacement except where the question of noise is a popular issue. In respect to the forks and rods of the shifting mechanism, certain parts should require replacement, while others should not.

Suffice it to indicate that, in general, it is only the parts that are subject to abrasion that should require renewal or adjustment. As to what may be the relative rate of wear of different parts, or what is the



THREE-QUARTER VIEW OF THE SAMPSON FIVE-TON STANDARD OIL TANK WAGON

any given period in its career, but by the investment necessary to replace it. Viewed in this light, depreciation is, therefore, “merely a matter of obsolescence,” which is the attitude taken by W. H. Palmer, Jr., the New York taxicab authority.

A deal of complication is introduced under the general heading of up-keep, when depreciation is dismissed in this summary fashion, however. As far as the bookkeeping end of the cost question is concerned, what happens is that the annual discount of the worth of the equipment is considerably reduced. At the same time, up-keep is made to include a sort of depreciation account for each individual part, either in-

less fixed relation to mileage, depending, of course on highway conditions and also on vehicle speeds. Prompt treatment of the vehicle would entail the replacement of such wearing parts at the end of a predetermined period of use, and before their dimensions had been worn down to the breaking point, or even sufficiently to impair the proper working of the springs.

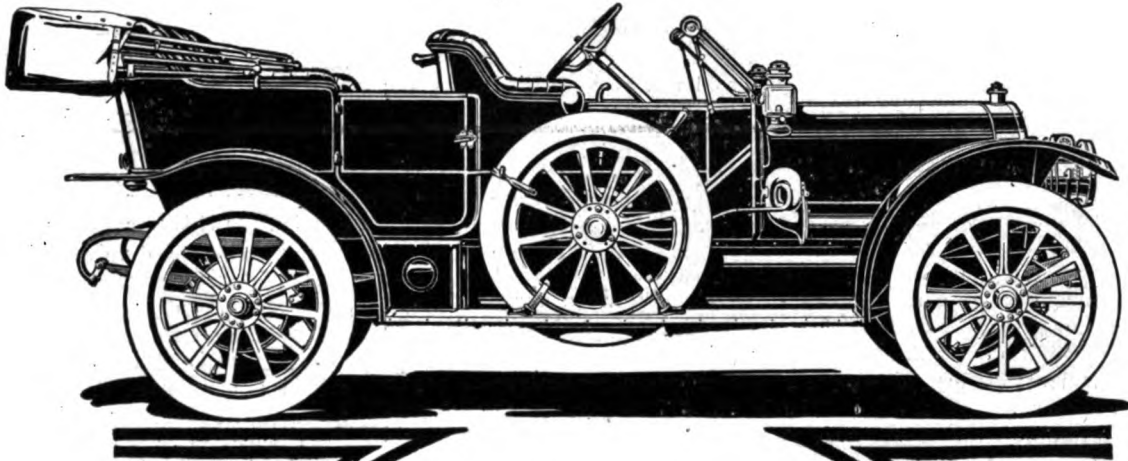
Similarly the casing of a gearset should last indefinitely, but the bearings of the shafts demand replacement at the expiration of a definite number of revolutions under load. Perhaps the less said about the replacement of gears the better, but at all events the inevitable wear of the teeth

respective influence on that rate of load, road and running conditions, fortunately, it is not now necessary to explain. An admission of ignorance, even, is no disgrace, for, as a matter of fact, no one knows.

The way to the successful handling of the motor truck problem of the future it plain to see, even though some of the details of the method remain to be worked out. Designers must arrange all wearing parts—as they are even now doing with certain ones—so that the worn elements can be replaced with a minimum of labor and expense. The probable life of such fittings must be evolved largely on an empirical basis. Records of truck perform-

Rambler

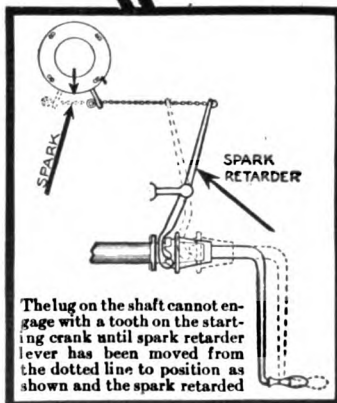
Motor Cars



Rambler
Sixty-four

THERE is no danger in cranking a Rambler. The Rambler Safety Cranking Device removes possibility of injury to you. Examine the illustration below and you will see how important is this exclusive Rambler feature. The Rambler has many such advantages of safety, comfort and convenience. Big wheels, big tires and long wheel-base make it ride easily. Seven-eighths elliptic springs and shock absorbers protect you from jolts. The steering pillar may be adjusted to suit your comfort. The upholstery is that found in the finest club furniture. The Spare Wheel removes worry about tire trouble and brakes are larger than will ever be needed. The Offset Crank Shaft and Straight Line Drive enable slow driving on high gear in crowded traffic and obviate the necessity of rushing the hard pulls through sand and up grades.

A telephone message to the nearest Rambler representative will bring this car to your door for inspection. The new catalogue is ready. Send for it.



The Thomas B. Jeffery Company

Main Office and Factory, Kenosha, Wisconsin
Branches: Chicago, Boston, New York,
Milwaukee, Cleveland, San Francisco

ance in different parts of the country, and under readily distinguishable conditions, must be kept separate, so that the "expectations" of different sorts of service may not be confused. "Averages" that are not representative must be avoided.

Thus, in the future, instead of figuring on replacing, say, a dozen spring shackle bolts at 50 cents apiece in the life of the truck, possibly a dozen and a half of bushings will be used, each costing somewhere about ten cents at the outside. Instead of rebuilding the gearset periodically, certain of its parts will be replaced, possibly by representatives of the builder, at stated intervals. Wherever wear is liable to occur, suitable renewal sections will be inserted at a fraction of the present cost of replacement.

Hence the operating problem will be simplified to the periodical substitution of certain definite parts—always excepting the question of accidental damage and the results of abuse. The operator profitably can reduce the equipment and skilled labor accounts of his repair department; his loss of vehicle time through repairs will be materially reduced, and the value of truck service will be proportionately increased.

As for the manufacturer, a study of the operating problem will result in definite knowledge in respect to the at present visionary "life expectation," which, it is held, will come to replace the present loose ideas of depreciation. Instead of planning to manufacture parts for a given lot of cars, he will plan at the very outset to manufacture a sufficient number of parts to outlast the probable life of those cars. Standardization of bushings and other replaceable elements, will enable him to make profitable use of die-casting and stamping processes which, except for quantity work, are impossible to undertake in his own shops. Even where portions of his operations are "farmed out," the increased quantity demands resulting from a lumping of original and renewal requirements, will be of assistance in reducing his outlay per piece.

Another point: In treating the manufacturing problem as one the purpose of which is to produce a number of distinct component units, the idea of flexibility in the equipment will be advanced. The producer thus will find it no hardship to prepare to sell trucks with different gear ratios, different engine powers, different spring equipments, different wheel and tire equipments, nor to keep such varied equipments supplied with parts. This, of course, entails the disappearance of the distinct model, perhaps of the stock car, as the term at present is understood; but it does not imply the disappearance of the stock component. By paying more attention to the production of standardized parts and less to the production of distinct models, the manufacturer will be able to turn out a product that is more adaptable and even less expensive to build and to maintain.

"That's all well and good—a very pretty

theory," says the man in the armchair, making motions in the air with his cigarette, "but it'll be a long time coming, believe me."

Perhaps it will. At the same time, what would require years to accomplish in any other line of activity can be mastered by the automobile industry in a very short time, as the very growth of the business is eloquent witness. Already truck builders are beginning to recognize the limitations that are imposed by too much individuality of effort. To progress more rapidly they must pool issues in the study of certain common problems, one of which is the cost problem. Granted only a suitable clearing house for cost information and a standard method of obtaining and classifying records of performance in respect to the life of individual parts, it will not be long before the makers of motor trucks will begin to learn how properly to predetermine the ratio between car production and parts production, and will learn to base their prices on such total production costs plus a standard percentage of profit.

"That's all right," replies the skeptic once more, "but whereas the cars are sold at once, or at least, say, inside of a year, the spare parts must be held in stock anywhere from one to ten years, or whatever vehicle life you may choose to figure on. What you save by making a whole lot of parts at once, you will lose in interest on the investment which they represent. Either that, or you must make up your parts a few at a time, and so lose the advantage of multiple production.

"And another thing, you cannot get the sort of records you need without relying on the individual operator, especially the little fellow with his one or two trucks, to keep close record and turn in true reports at stated intervals. It isn't likely he will care much about doing that. If it is practically impossible to keep him from overloading and overspeeding, as it is, how in the world are you going to get him to give you an accurate account of what is going on every day in his own business, when that information would enable you to tell him he was expecting too much for his money's worth?"

"Love will find a way." Once it is definitely known how many parts of a given description must be made to last a certain lot of trucks through their natural life, the matter of distributing the cost of these parts and of writing off the investment which they represent will become a very ordinary problem in cost accounting. Cost accounting is a highly developed art that can be relied on for the solution of any problems that properly come within its province.

As for holding the operator down to ratings in the handling of his equipment, whether in the matter of loads or speeds, that is really a part of the whole scheme, although it may not at first so appear. The price of replacement parts, for example,

might be made to depend on the assurance that their requirement was that of legitimate use. Any way conditions are viewed, the thoughtful manufacturer is even now seeking to find out exactly what happens to his product after it goes out of his hands—he cannot improve it unless he has that information. The next step is for him to contribute to the standardization of parts and the standardization of the life of such parts in normal service. That is about all there is to it.

Port Elizabeth a Promising Market.

"Automobiles are becoming more popular every day," reports the American consul at Port Elizabeth, South Africa. "There are at present about 30 in the town and as many more in other towns throughout the district. British cars predominate, but there is evidence of a demand for a medium grade American car. All the rubber tires imported separately are from England. For automobiles these have not been imported to any great extent. Carriage tires of solid rubber are imported to a considerable extent. With steamers direct from New York once, twice, and even three times a month, there should be no difficulty in securing a portion of this trade.

"Rubber tires for carriages and automobiles are selling more and more freely in Port Elizabeth itself, but outside the town, owing to the indifferent roads, the demand is small. In Port Elizabeth the roads are kept in excellent condition at all times. Roads here are constructed of macadam surfaced with tar. As the town is very hilly and the residential section is situated in the higher portions, cabs are used to a considerable extent. All these cabs are equipped with solid rubber tires, as are nearly all private carriages, which are very numerous."

Michelin's Table of Tire Pressures.

The necessity of keeping the tires on one's car inflated to the exact pressure frequently has been impressed upon automobile owners by the respective tire companies, but it is not so easy to tell just when the tires are inflated properly. To assist the owner and driver in determining the needs of his own car, when fully loaded with passengers and complete equipment, the Michelin Tire Co., of Milltown, N. J., is sending out one-sheet posters giving the number of pounds its pressure tester should show for different weights of car and different sizes of tires. For cars weighing from 600 to 1,000 pounds, 3-inch tires and a pressure of 50 to 60 pounds are recommended; for cars weighing 800 to 1,600 pounds, 3½-inch tires inflated to 50-70 pounds; for cars weighing 1,300 to 2,200 pounds, 4-inch tires inflated to 60-75 pounds; for cars weighing 1,400 to 2,600 pounds, 4½-inch tires inflated to 60-80 pounds; and for cars weighing from 2,200 to 3,200 pounds, 5-inch tires inflated to 70-80 pounds.

FARMER STATES SEVEN REASONS

Texas Agriculturist Crisply Summarizes the Necessities for Automobiles—Some of His Own Experiences.

While the advantages of the automobile on the farm often have been painted in glowing colors—usually by men who had nothing to do with farming—the real opinion of the tillers of the soil and the benefits the motor car holds for them, never have been better or more crisply summarized than by a Texas farmer, who gives his views in *Farm and Ranch*, as follows:

"I can tell you seven reasons in seven seconds why the automobile is an absolute necessity to the farmer," the Texan writes, "and here they are:

"First—My automobile put me on the scene at critical times when an hour meant profit or loss.

"Second—My automobile is a great factor in establishing good will and co-operation between my renters and me.

"Third—It has made possible the development on my farm of a social center, from which it has resulted that I have secured my pick of farm renters for my land. It has enabled me to go in for scientific agriculture, long sighted methods and prizes which will mean a still higher reputation for my acreage.

"Fourth—Day and night errands and the delivery of products on schedule time have resulted from the possession of a machine.

"Fifth—My family, my renters and I now enjoy the advantages of both city and country life, with very few disadvantages of either.

"Sixth—My automobile has brought about great improvement in our roads, which is an asset to the whole community.

"Seventh—It enables us to care for our sick and wounded safely and promptly with surgeons and physicians when the emergency demands.

"Before I bought my automobile nobody loved a horse better than I did. Since without prejudice I had been kicked and bitten by favorite horses, had gone through runaways and discussed situations with balky animals I was quite sure that nothing could break my attachment for a good driving horse.

"When it came to the automobile I did not have much faith in my experiment. I had made up my mind that it was liable to break down at any time; that all my neighbors would be set against me because their horses would be afraid of the machines; that altogether the outcome could scarcely be pleasant.

"Here's my experience:

"The automobile never complains nor fails to respond, except when abused by reckless driving over rough places, while

it delights in going at high speed where the roads are good.

"Many farmers suppose that the automobile is for the wealthy man, when it is really the friend of the poor man—much cheaper than horses and good vehicles if managed with the same care. I believe that it is a valuable investment, just as is the plow or mower.

"Let me illustrate how automobile owning works: One day I was in Sherman when a 'phone message came that something had gone wrong with the cattle and no one knew what to do. It was up to me to be on the ground immediately. With a horse this would have required at least an hour, and I probably would have had to hire a rig in the city and pay \$5 for it. Instead of that I answered 'Coming,' clapped the receiver up, ran out, cranked the machine, jumped in, and well within half an hour was working with the cattle.

"That one instance was worth a great many dollars, and I could cite twenty like it of quick trips about the farm. That is one reason why I say that in three months last winter my machine earned enough to pay for itself in ways not expected by me when I bought it.

"The average renter sets down his renters in their little shacks on this and that hilltop, sees them once a month, and allows a spirit of misunderstanding, envy, distrust and ignorant farming to 'take' his farm. Although I use the greatest care in choosing my renters, this would have been my fate but for my automobile."

Cressy's Epitaph for Deceased Tires.

Will M. Cressy, author and actor, who is an automobilist also, is possessed of that nimble wit which should go with his vocations. Recently he gave proof of it in suggesting an epitaph for a pair of old tires which he had forwarded to the United States Tire Co. for examination and which proved to be beyond repair. Informed of the fact, he replied:

"In answer to your communication of the 11th, stating that casings taken from my car are N. G. and asking instructions as to what disposition to make of them, I will say: Deposit them with suitable ceremonies in the junk heap, erecting a modest monument over them, inscribed,

"Sacred to the memory of two Hartford tires.

"Born in Hartford in 1909.

"Lived an exhilarating life, reaching from Boston, Mass., to Tie Juana, Mexico, and back to Boston. Total mileage, 8,000 miles.

"Died in Worcester, Mass., on May 7, 1911, from lack of air!

"The two inner tubes, if convalescent, send to me at my hotel."

According to the Tokio police returns there are 131 motor cars in use in the Japanese capital. In Honolulu, which is located on a less populous island in the Pacific, there are more than 700.

WORKING FOR A STATE HIGHWAY

Missouri Motorists Succeed in Interesting Their Governor—Provide Cars for Three Days' "Prospecting" Trip.

Gov. Herbert S. Hadley, of Missouri, and a large party of motorists will leave St. Louis, July 24, for an automobile tour of road inspection. The trip will last three days. This tour is of much importance to the good roads movement, and may lead to the establishment of an official State highway, which the Missouri motorists have been urging. Gov. Hadley always having been a warm advocate of the movement, he appointed a committee of inspection to accompany him, after being assured by the Automobile Club of St. Louis, the Automobile Club of Kansas City and the St. Louis Automobile Manufacturers and Dealers' Association that a sufficient number of automobiles for the party would be furnished.

In addition to the official party, many local motorists will make the trip. The inspection committee has been divided into two sections, one leaving St. Louis and the other Kansas City at the same time and meeting at a central point. The St. Louis division will divide into two sections at St. Petersburg, one going over the Northern route and the other by the Central route. Returning, the first section will come by the Central route and the second section will take in the Southern route. The Kansas City division will cover the Western section of the three routes.

The members of the inspection party will be: Gov. Hadley; Jesse Tolerton, game warden; W. A. Dahlmeyer, J. W. Householder, H. B. Lewis, Norman J. Coleman, W. R. Wilkinson, R. A. Young, A. T. Nelson, E. E. Swink, members of the State Board of Agriculture; Andrew Sheridan, road expert of St. Louis Street Department; Samuel Plant, marshal; George J. Tansey and James Hagerman, Jr., Automobile Club members in charge of the tour, and representatives of the press.

How a Truck Entered a Saloon.

Not being satisfied with its load of beer, a big automobile truck belonging to Jacob Ruppert Brewing Co., New York, one day last week made its way into a saloon at Eighth street and Third avenue, New York City. In order to get inside the big machine literally had to tear away the entire front of the building. After doing this, the bar was pushed across the room and bottles and glasses were scattered around in all directions. Matthew Tierney, who was in charge of the truck, says it got beyond his control. The truck was only slightly damaged, while the damage to the building is placed at \$1,000.

THE S G V CAR

¶ It takes a man who knows a good deal about automobiles to be interested in the S. G. V. car.

¶ There are a few such in almost every town big enough to have a real automobile dealer.

¶ To such dealers the agency of the S. G. V. car is an asset far above what the mere profit on sales would amount to.

¶ It's similar to the standing a jeweler enjoys when it's known his stock includes some extra fine stones.

¶ The S. G. V. car is an extra-fine product for which there is a limited demand—though it has always been in excess of production.

¶ This excess demand we are trying to partly supply by a moderate increase in output.

¶ And we wish to distribute this increase as widely as possible.

¶ Hence we offer to a limited number of agents who have suitable show-rooms and the right kind of patronage a chance to secure a few S. G. V. chassis which are particularly adapted to fall and winter business. Fitted with enclosed bodies they make the De Luxe town car of distinctive dignity, lasting integrity and astonishing performance.

¶ Our first announcement last week has already brought in general inquiry and it is suggested that intending agents make known their requirements without delay.

¶ We will not sell one car more than we have laid down and deliveries will be made according to schedule.

¶ We firmly believe that we are offering the highest class medium powered and the simplest motor car made in the United States. The S. G. V. car has no batteries, coils, vibrators, no levers on the steering wheel, nothing whatever on the dashboard except a small gauge to indicate that the motor is being lubricated. The car has practically no carburetor, because it is absolutely non-adjustable.

¶ The motor is $3\frac{3}{4} \times 4\frac{3}{8}$, rated at 25 H.P. Finished cars are made with 2, 4 or 5 passenger open bodies and 6 passenger Landaulets and Limousines. The open cars list at \$2,500; the closed cars at \$3,500. The chassis is very simple, very strongly built. Cars are fully equipped, except top and curtains. Equipment includes lamps, horn, magneto, tools, tire irons, demountable rims.

¶ Our printed matter shows the construction of the car and views of finished cars. A request by mail will bring an immediate reply.

This is the season to prepare for Fall and Winter business

THE S. G. V. COMPANY, Reading, Penn.



988,635. Engine Starter. John Watson Fitzgerald, Grand Rapids, Mich. Filed Aug. 26, 1910. Serial No. 579,102.

1. In an engine starter, a freely movable valve, moved to open position by pressure of fluid from the engine cylinder, means for preventing the valve from closing while injecting a starting fluid past the same and means for positively closing the valve against said pressure when the engine is running.

988,650. Explosive Engine. Harry E. Norris, Worthington, Ohio. Filed July 26, 1910. Serial No. 573,999.

1. The herein described combination of a cylinder having a water space, a passageway below the water space, inlet and exhaust ports, the inlet port being opposite the inlet of the passageway and the exhaust port being opposite the outlet of said passageway, a hollow main piston provided with an inlet slot and an outlet opening adapted to register with the inlet port and the inlet to the passageway, respectively, and having a baffle plate mounted on the outer face of the top thereof for deflecting the gases as they enter the combustion chamber, means for reciprocating said piston, an auxiliary piston slidably mounted within the main piston, and means for simultaneously reciprocating said auxiliary piston in the opposite direction to that of the main piston.

988,659. Carburetter. Albert Phinney, Chicago, Ill. Filed Oct. 4, 1909. Serial No. 520,974.

1. The combination with a mixing chamber, of a casing fixed thereto and having air inlets in the side walls thereof, a sliding hollow valve within said casing and having an open end adapted to project into said chamber and provided with lateral air ports registering radially with the air inlets of said casing and adapted to open into the mixing chamber, and an inlet tube for the hydrocarbon passing entirely through said sliding valve and having its discharge opening located centrally of the air inlets whereby its discharge may always be over the upper end of said valve into said chamber.

988,729. Power Transmission Mechanism. Edward Samuel Morrow and Charles Milton Simmons, Cestos, Okla. Filed Jan. 19, 1910. Serial No. 538,941.

1. A power transmission mechanism, comprising a driving axle, a stub axle, power-transmitting wheels in driving engagement with each other and mounted on the adjacent ends of the said axles, one of the wheels being slidable on its axle, and a connection between the hub of the sliding wheel and the bearing of the other wheel for moving the said slidable wheel axially on turning the stub axle out of axial alignment with the driving axle.

988,800. Carburetter. James A. McHardy and Charles A. Potter, Providence, R. I., assignors to Allen Fire Department Supply Company, Providence, R. I., a Corporation of Maine. Filed Sept. 10, 1908. Serial No. 452,508.

1. A carburetter comprising a hydrocarbon reservoir, a flue extended therethrough,

a partition extending longitudinally through said flue to form an air passage and a carburetted air passage, means for supplying hydrocarbon vapor to the latter passage, and a single valve controlling both passages simultaneously, said partition being provided with means co-operating with said valve for permitting the flow of air and vapor to vary in a predetermined ratio, said valve having a port communicating with the carburetted air passage when nearly closed.

988,817. Clutch. Charles C. Rich, Mount Vernon, N. Y., assignor to The Hydro-Kinetic Transmission Company, Mount Vernon, N. Y., a Corporation of Maine. Filed July 23, 1910. Serial No. 573,569.

1. A clutch of the character described, comprising, in combination with drive and driven shafts, a rotor connected to the drive shaft, a rotor casing connected to the driven shaft and formed with inlet and outlet ports, and a shell casing enclosing and surrounding the rotor casing and embodying two parts, one of which is adapted to close said ports and the other of which is designed to establish communication between the ports, the shell casing having a longitudinally sliding movement on the driven shaft.

988,840. Spark Plug. Dwight W. Wadsworth, Bangor, Mich. Filed Sept. 28, 1909. Serial No. 519,942.

A spark plug comprising a metal shell, a core of insulating material secured within the metal shell and having a head at its inner end provided in its sides with a series of recesses forming spaced portions, a conductor secured within the insulated core, an electrode connected with said metal shell, and a series of conductor sections supported in the spaced portions of the head at the inner end of the insulated core and having their ends exposed and in close relationship, whereby a plurality of spark gaps are formed.

988,890. Tire Rim. Frank M. Miller and Arthur F. Steyer, Pontiac, Mich. Filed Sept. 14, 1909. Serial No. 517,708.

1. The combination of a wheel felly having a radially disposed slot extending inwardly from one side, a tire carrying rim mounted on the felly and removable laterally therefrom, means for securing the rim and felly together, a radially disposed valve tube connected with the rim and disposed in the slot, an L-shaped member for closing the side and bottom of the slot and having an opening in its bottom through which the valve tube extends and having slots in its vertical portion, a nut on the tube arranged to screw home against the member and serving to retain the member on the tube when the rim is detached from the felly, and fastenings in the felly extending through the said slots of the vertical portion of the members to clamp the latter in place.

988,973. Transmission Mechanism. Samuel C. Carter, Los Angeles, Cal. Filed May 19, 1910. Serial No. 562,316.

1. The combination with a driving shaft of a low-speed bevel pinion and other beveled pinions longitudinally slidable on said shaft and provided with gear faces, means for moving the low-speed gear into position to mesh with gear faces on said disks, a sleeve loosely mounted upon said driven shaft and contacting said disks, means engaging said sleeve and bodily shifting said disks simultaneously, with means for shifting the other pinions into and out of mesh with gear faces on one of said disks.

988,997. Vehicle Tire. John G. Funk, Swissvale, Pa. Filed Sept. 27, 1910. Serial No. 584,042.

1. In a vehicle tire, the combination of an inner rim detachably attachable to the felly, an inclosed shoe provided with an annular opening along its inner periphery, said shoe having a flat outer face with annular radial projections along its lateral edges, an outer rim adapted to be mounted on said flat face and having annular seats for said radial projections, and a tread secured to said outer rim, substantially as described.

989,040. Driving Mechanism. Harry E. Perrault, Detroit, Mich. Filed Nov. 7, 1910. Serial No. 591,005.

1. In a driving mechanism for a two part shaft, the combination of a shell, two independent drums revoluble therein, a clutch ring mounted in each drum, a central driving disk between the drums and connected to said shell, means to revolve said disk, levers to cause the operation of said clutch rings and a pair of connected arms for preventing the operation of said clutch rings.

989,057. Starting Device for Internal Combustion Engines. Welton H. Rozier and Samuel C. Igou, St. Louis, Mo., assignors to Motor Car & Device Company, St. Louis, Mo., a corporation of Missouri. Filed July 10, 1908. Serial No. 442,837.

1. The combination with an internal combustion engine of an electrical generator therefor, gearing for driving said generator in time with said engine, means for permitting a limited movement of said generator relative to said engine and connections independent of the engine adapted to engage with the generator when it is in any position to move said generator to produce an initial spark.

989,132. Annunciator for Explosive Engines. Rodney C. Dewey, Hoytville, Ohio. Filed Apr. 1, 1908. Serial No. 424,527.

1. In a device of the described character an engine having a plurality of explosive chambers, an annunciator which includes for indicating visually the explosions in each of the explosion chambers and means controlled by the explosions in the respective chambers for actuating the appropriate indicator in the annunciator.

989,258. Ball Bearing Mounting. Henry Hess, Philadelphia, Pa. Filed Apr. 24, 1906. Serial No. 313,444.

1. The combination of a rotary shaft, a stationary support, two non-adjustable ball bearings each comprising an inner and an outer bearing ring provided with radially opposite races of curved cross section and means acting upon the support and a bearing member to maintain the shaft in true rotative alinement.

989,307. Carburetter. Charles P. Simmons, New York, N. Y. Filed Nov. 30, 1910. Serial No. 594,830.

1. In a carburetter the combination comprising a housing having an air inlet and a mixture outlet and whose diametrical horizontal cross sectional area is less than all other diametrical areas, a gasoline container pivotally mounted in said housing and having a maximum external cross sectional area substantially co-extensive with the diametrical horizontal cross sectional area of said housing, said container itself constituting a valve and being adapted when rotated to admit a graduated supply of air between its outer surface and the inner surface of said housing and the said

container being provided with one or more orifices extending through the walls of said container, adapted to permit the escape of gasoline from said container and into said housing.

989,312. Yieldable Gearing. Richard H. Voegtli, Sharpsburg, Pa. Filed Sept. 23, 1910. Serial No. 583,377.

A yieldable gearing comprising a supporting shaft, a large gear wheel provided with a plurality of circumferentially disposed openings adjacent to the periphery of said wheel, a spindle carried by said gear wheel and connected to said supporting shaft, a tubular pin loosely mounted upon said spindle, a crank carried by said tubular pin, a spirally wound retractile band spring having one end thereof attached to said tubular pin, a post detachably mounted in one of the openings of said gear wheel and adapted to have the opposite end of the spring attached thereto and means carried by said spindle and normally engaging said tubular pin for limiting the movement of said tubular pin upon said spindle, substantially as described.

989,332. Vehicle Tire. Albert P. Burrus, Prescott, Ark. Filed Sept. 7, 1910. Serial No. 580,847.

A supplemental tire for vehicle wheels having pneumatic tires, comprising a member formed to provide an annular concavity for the reception of the pneumatic tire and into which the tire when inflated will be expanded against the walls of such concavity, the said member having a tread flange surface thereon and formed at one side of the said surface to provide an annular guard flange, spokes extending inwardly toward the hub of the wheel and formed to provide a hub-receiving passage and fastening devices connecting the spokes of the member with the spokes of the wheel.

989,407. Shock Absorbing Device. Luther A. Peckham, Edgewood, R. I. Filed Nov. 6, 1909. Serial No. 526,524.

1. A shock absorber for vehicles comprising a fixed stud, a ratchet wheel sup-

ported by said stud, means for preventing rotation of said wheel on the stud, a friction drum independently and rotatably supported by said stud, an annular space being formed between the ratchet and inner wall of the drum, a pawl in said space and supported by the drum and engaging the ratchet, means for closing said annular space, a friction band surrounding said drum, and connections for causing the friction band to oscillate, whereby the friction drum will be intermittently rotated.

989,408. Shock Absorber. Luther A. Peckham, Edgewood, R. I. Filed Apr. 6, 1910. Serial No. 553,706.

1. A shock absorber comprising a compound lever consisting of three members, two of which are substantially semi-circular and are pivoted together at one end, the other ends being pivotally connected to the

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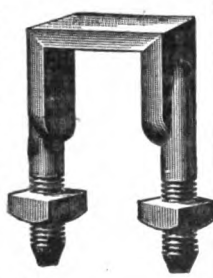
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third member at different points of the latter, a non-rotary friction drum inclosed by the said semi-circular members and means carried by one of said semi-circular members for limiting the closing effect of the semi-circular members due to the operations of the third member.

989,426. Mechanism for Transmitting Motion. Harry Beauregard Ross and Robert M. Ross, Denver, Colo., assignors of one-half to H. Byrd Northrop, Denver, Colo. Filed Jan. 26, 1910. Serial No. 540,246.

1. In means of transmitting motion the combination with a driving and a driven shaft, the driving shaft being endwise movable and the driven shaft being movable toward and away from the driving shaft, of a changeable speed gearing connection between the two shafts, comprising concentric gears of varying size, and eccentric gears interposed between the concentric gears, for the purposes set forth.

989,427. Mechanism for Transmitting Motion. Harry Beauregard Ross, Denver, Colo. Filed May 23, 1910. Serial No. 562,819.

1. In means for transmitting motion the combination of a driving shaft, a driven shaft, an interposed countershaft, a constant speed gearing connection between the driving and countershafts and a changeable speed gearing connection between the countershaft and the driven shaft, consisting of a number of eccentric and concentric gears alternately arranged on the countershaft and a concentric gear on the driven shaft, substantially as described.

989,494. Detachable Wheel Rim. Augustus D. Foucart, Muncy, Pa. Filed Dec. 15, 1908. Serial No. 467,629.

1. In a wheel the combination of a fixed rim having exterior interrupted threaded sections, and an exterior rim having a detachable flange adapted for holding an elastic tire and having interiorly threaded sections of less length than the spaces between the threaded sections of the fixed rim, whereby such exterior rim, with elastic tire attached, may be applied and secured to, or detached from, the fixed rim, as shown and described.

989,689. Gearing. Ferdinand H. Berger, Detroit, Mich., assignor to Russel Motor Axle Company, Detroit, Mich., a corporation of Mich. Filed Sept. 16, 1910. Serial No. 582,386.

1. The combination with an axle case of a compensating gearing insertible in and removable from said case as a unit, said removable unit including the housing for the parts.

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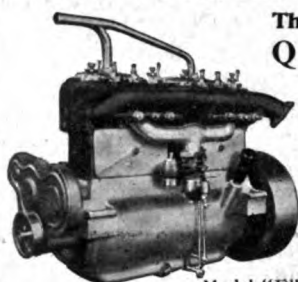
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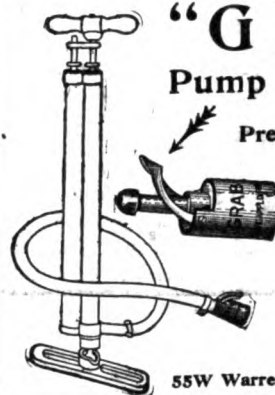
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THE MOTOR WORLD

Vol. XXVIII.

New York, U. S. A., Thursday, July 27, 1911.

No. 5.

NEW HEAD FOR STEVENS-DURYEA

**Former President of Allis-Chalmers Co.
Enters the Automobile Industry—I. H.
Page Divides His Duties.**

Walter E. Whiteside, for several years president of the big Allis-Chalmers Co., and previously connected with the Westinghouse company in an official capacity, will become president of the Stevens-Duryea Co., of Chicopee Falls, Mass., on Saturday next. Negotiations to that end already have been consummated, but Mr. Whiteside's formal election will not occur until next Saturday night, when a meeting of the stockholders of the Stevens-Duryea Co. will be held for that purpose, in accordance with the requirements of its Massachusetts charter.

Mr. Whiteside's entry into the automobile industry is wholly through the earnest efforts of I. H. Page, whom he will succeed in the presidency, but who will retain his holdings and interest as well as the office of treasurer of the Stevens-Duryea Co. It is a happy combination of two men, each of whom sought relief from too arduous duties. Mr. Whiteside, who has been a national figure in business circles for many years, laid down the exacting duties of the head of the Allis-Chalmers Co., intending to take a year's rest in Europe, but Mr. Page, whose strength was strained almost to the breaking point by his many interests, "went after" Mr. Whiteside so energetically that he at last capitulated; moved in part by the prospects of a New England farm as well as belief in the character and future of the Stevens-Duryea company.

Mr. Whiteside's business career is a notable one. He organized the lamp department of the great Westinghouse Co. and made it the most profitable department in the company, and as president of the Allis-Chalmers Co., one of the biggest engineering concerns in the world,

his work was on the largest scale. He is accustomed to doing big things in a big way and cannot well fail to make an impression in his new field.

Wood Seeks Authority to Change Name.

The W. A. Wood Automobile Mfg. Co., of Kingston, N. Y., has filed the required legal notice that on July 29th it will apply to the Supreme Court for authority to change its corporate name to Wyckoff, Church & Partridge, Inc., which latter selling firm itself became a corporation some two or three months since. Both concerns have been closely linked, the Wood company having in hand the manufacture of the Guy Vaughn touring car and the American reproduction of the English Commer truck, for which the firm Wyckoff, Church & Partridge had the American representation. When the Wood company is authorized to change its title, the two corporations will become one in name as well as in fact.

Welch and Rainier Become Marquettes.

The Welch Motor Co., of Detroit, is about to be merged with the Marquette Motor Co., of Saginaw, Mich., but as both are properties of the General Motors Co., the consolidation is largely a family affair. The Welch plant in Detroit will be discontinued and henceforth not only the Welch car but the Rainier, which has been produced in the Saginaw factory, will be styled Marquettes, being distinguished only by model numbers or letters.

Claims Harbridge Appropriated Ideas.

Suit for infringement of patent has been instituted in the United States court in Detroit by the Universal Rim Co., of Chicago, against the Detroit Demountable Tire Co. and the Snyder-Harbridge Co., of Detroit. It is alleged that Justus C. Harbridge, one of the founders of the two Detroit concerns, formerly was an employe of the Chicago company, and that he appropriated the latter's ideas and made use of them in the Detroit rim. The complainants ask for both an injunction and damages.

UNITED MANUFACTURERS DISSOLVE

**Far-reaching Co-operative Organization
Comes to an End—Each Member Again
Will Handle Own Sales.**

With the close of the present month the United Manufacturers, of New York, will terminate their existence and the four manufacturers whose productions have been marketed through that co-operative selling organization again will go their separate ways and dispose of their wares according to their individual ideas and through their own sales staffs. For all practical purposes the dissolution already is complete.

The United Manufacturers represented by far the most ambitious form of co-operative salesmanship that has ever been attempted in the automobile industry. The union was formed about two years ago, the parties to it being J. W. Jones, maker of Jones speedometers; the Weed Chain Tire Grip Co., maker of the Weed grips; C. A. Metzger, Inc., maker of soot-proof and other spark plugs; the New York and New Jersey Lubricants Co., maker of oils and greases, and the Connecticut Telephone & Electric Co., maker of the Connecticut ignition devices and shock absorbers. The last named company, however, withdrew from the organization several months since, and both before and since that time rumors have circulated that the co-operative plan was not working so smoothly as had been anticipated. The basis of the organization was the old idea that it is possible for one central sales office and one set of salesmen to market the products of a number of kindred but non-competing manufacturers at little more than the cost of conducting an individual selling system. The idea and the impressions of increased business and far-reaching economies which it suggests never will lose their attractiveness, but the United Manufacturers gave the system a thorough test, and its failure in this instance is not calculated to encourage others

to undertake a similar co-operative movement.

The four companies comprising the United Manufacturers henceforth will prosecute their sales from their respective factories, and most of their salesmen naturally will be drawn from the force which has represented the United Manufacturers. As the officers of the latter were officers of the four parties to the co-operative agreement, they, of course, merely return to their original tasks and with nothing to divide or distract their attention therefrom.

Changes Among Prominent Tradesmen.

F. G. Bigelow has purchased an interest in the Stephenson Motor Co., of Milwaukee, of which he has been elected treasurer.

Joseph Bennett, who previously represented the Alco interests, has been appointed New England representative of the Warren Motor Car Co., of Detroit.

J. O. Thorson has been appointed advertising manager of the Lion Motor Car Co., of Adrian, Mich. Previously he handled the Brush Runabout Co.'s advertising.

D. W. James has been appointed assistant sales manager of the Metzger Motor Car Co., of Detroit. Formerly he was connected with the Carl H. Page Co., in New York.

F. C. Mock, at one time assistant engineer for the Royal Tourist company, has joined the Thomas B. Jeffery Co., of Kenosha, Wis. He will be attached to the Rambler engineering staff.

Bert A. Becker, who became manager of the Elmore Manufacturing Co., of Clyde, Ohio, when it was taken over by the General Motor Co., has resigned that office. The Elmore property was owned and built up by the Becker family.

Joseph Wolf, formerly with the Post & Lester Co., has become a traveling sales representative of the Eagle Co., Newark, N. J., in the wind shield department. His territory includes New England, New York, Pennsylvania, Delaware, Maryland and the District of Columbia.

Ray Harroun, who earned his greatest fame as the driver of the Marmon Wasp, has been added to the engineering staff of the Nordyke & Marmon Co., of Indianapolis. Although best known as a racing driver, Harroun is a skilled engineer and has invented several automobile devices.

Two New Men in United States Tanks.

George B. and Richard A. Bullock have purchased the Behen holdings in the United States Pump and Tank Co., of St. Louis, Mo., and a semi-reorganization has occurred, although H. D. Murdock remains secretary and manager of the company. A new plant is to be secured and the manufacture of garage tanks and self-measuring pumps engaged in on a large scale.

CAMPBELL ON SHOW CONDITIONS

President of A. M. A. A. Expresses Pointed Views—Too Many Shows and All Held Too Late to be Useful.

Asked his opinion of the show situation, Col. Theodore A. Campbell, president of the Imperial Automobile Co., of Jackson, Mich., was remarkably outspoken and to the point; and what he said is more than usually significant in view of the fact that he is president of the Automobile Manufacturers Association of America, which is booked to hold its first show in Grand Central Palace, New York, during the first week of January.

"In the first place, all shows are held too late," said Col. Campbell. "The dealer must have his line picked out and lined up before the first of January. The manufacturer must know before that what he is going to build and have his samples out.

"Our suggestions would be to hold the shows in September and October, at which times all dealers are looking for their lines for the following year and the manufacturer is looking pretty hard at that time for the dealer. Sales are practically made and contracts closed so far as the dealer is concerned in January.

"I would also suggest holding only about two shows in the United States each year. There are too many shows. It costs too much money, takes too much of your valuable time and does not avail very much."

Detroiters Buy Virginia Top Fastener.

Having been purchased by Detroit men, the Ross-Heaton Mfg. Co., of Richmond, Va., has been removed bodily to the Michigan city, where it has been reorganized under the title the Detroit Auto Top Fastener Co., a patented top fastener, as the name indicates, being the cause of its existence. The new company, which is capitalized at \$50,000, has leased a part of a factory building at Beaubein and Fort streets in Detroit, in which the machinery now is being installed. The officers of the company are: President, C. J. O'Hara; vice-president, Charles S. Tolsma; treasurer, C. B. Whitman; secretary, Wade Millis; directors, H. N. Dunbar, F. E. Tallmadge, H. N. Backus, W. H. Beamer, W. M. Lewyn, A. W. Ehrman.

Accessory Thieves Jailed in St. Louis.

Following a series of thefts of money, tires and various other articles from the shop of the Western Automobile Supply Co., 4701 Washington avenue, St. Louis, Mo., Louis Lennon, a clerk in the place, was arrested and charged with grand larceny. It is said that he has confessed to some of the thefts, and his confession implicated David Grossman, a dealer, with a

place of business at 4363 Finney avenue. A tire, valued at \$60, was traced to a shop at 1900 Pine street, and it was found that Grossman had brought it there, having bought it at a low price from Lennon. Both Lennon and Grossman are in jail awaiting action by the Grand Jury.

Morgan Company to Be Reorganized.

Pending recapitulation and reorganization, the R. L. Morgan Co., of Worcester, Mass., has suspended operations. The company, which was one of the first motor truck builders in this country, long devoted itself to the development of a five-ton vehicle, for which the demand was slow and limited, but last year some new men and new money entered into its affairs, and the production of 1½-ton and three-ton trucks was taken up. They were slow in coming through, and their evolution used up the added capital and brought about the present temporary suspension. The heaviest stockholders, who are New York men, have decided to advance the necessary capital and issue first preferred stock to cover the amount, which, however, has not yet been satisfactorily totaled.

Ball Bearing Company Shuts up Shop.

The B-L Co., which some six months ago commenced the manufacture of ball bearings in Norwich, Conn., closed its doors one day last week for an indefinite period. The future of the company, of which Otto E. Bruenauer is president, will be decided when the directors are called together. The plant was a small one, employing only 25 men, but is said to have enjoyed a good business; its resources, however, are said to have been exhausted.

Ohio Factory Stops Before it Begins.

The Howard Motor Car Co., which aroused high hopes in Galion, O., has dashed them to earth. The stockholders, who once expected to become coupon-clippers and to hear the hum of industry, have decided that the prospects do not justify further investment, and accordingly the plant will be disposed of. It had not yet commenced to produce cars.

Guthrie Now Standard Welding Manager.

P. W. Guthrie has been appointed general manager of the Standard Welding Co., of Cleveland, to fill the vacancy caused by the death of W. S. Gorton. Mr. Guthrie previously was identified with the Republic Iron and Steel Co., of Pittsburg, which is equivalent to saying that he is well versed in the metal industries.

St. Louis Votes for an Outdoor Show.

The St. Louis Automobile Manufacturers and Dealers Association definitely has decided to conduct the open air show which has been under discussion for some time. It has selected the week of the Veiled Prophet parade, October 2 to 7.

SAYS ADAMS'S IS PAPER PATENT

In Suit Involving Midgley Tread, Hartford Rubber Works Makes Vigorous Reply
—Priority Also is Alleged.

Final argument in the suit of the Metallic Rubber Tire Co., of Jersey City, N. J., against the Hartford Rubber Works Co., of Hartford, Conn., which involves the Midgley wire tread used by the Hartford company, was heard by Judge Platt in the United States Circuit Court in Hartford on Thursday last, 20th inst.

The complainant's suit alleges that the Midgley non-skid tread is an infringement of its patent, No. 609,320, issued August 16, 1898, to Dr. Calvin Thayer Adams, of New York. Through its counsel, Ernest Hopkinson, the Hartford company attacked the validity of the Adams patent, citing as a prior invention a British patent issued to one Phillips, in 1893, and pointing out that the Hartford tire employing the Midgley tread is manufactured under license from Thomas Midgley, whose application for the patent was filed September 11, 1896, two years before the Adams patent was issued.

It also was contended that the patent issued to Adams was not issued in accordance with law; that it is not useful and is merely a "paper patent," which, without regard to the question of anticipation of prior patents, discloses an impracticable device, as concerns any commercial value. The Hartford Rubber Works Co. further alleged that there was no evidence before the court to show that any tires had ever been manufactured, or attempted to be manufactured by the Metallic Rubber Tire Co., or any license issued under the Adams patent.

The court took the case under advisement.

Gets Lower Duty on Magneto Parts.

The Board of United States General Appraisers last week sustained the protest of the Packard Motor Car Co. against an assessment on imported magneto coils and condensers which had been levied by the Collector of Customs at the port of Detroit.

The goods in question were taxed under paragraph 141 of the tariff act, as "finished parts of automobiles." The Packard Company claimed the merchandise dutiable at 20 per cent. ad valorem under paragraph 480, as "non-enumerated manufactured articles," and at 10 cents per pound and 20 per cent. ad valorem under paragraph 91, as "manufactures of which mica is the component material of chief value."

General Appraiser Fischer, who wrote the decision of the board, says in his opinion:

"It appears from the record that the windings and condensers are of the same character as the articles passed on by the board in abstract 24,259 (T. D. 31,070). The coils

are in chief value of covered copper wire and are dutiable as 'wire articles' under paragraph 135. That claim is not raised by the protest, and as to such goods the protest must be overruled. The condensers are in chief value of mica, and as to such merchandise the claim in the protest under paragraph 91 is sustained. Reliquidation will accordingly follow."

Lower Rate to Canada Now Assured.

Automobiles are among the parts that will be benefited by the Canadian reciprocity bill, which was passed by Congress on Saturday last, 22d inst., after four months of hauling and counter-hauling. After the act is ratified by the Canadian Parliament and is proclaimed by President Taft, "motor vehicles, other than for railways and tramways and motor vehicles and parts thereof, not including rubber tires"—to quote the exact language of the bill—which are shipped into the Dominion will bear a duty of 30 per cent. instead of 35 per cent. as at present, a reduction equivalent to 14.3 per cent. On the other hand, if ever Canada ships such products into this country, the duty thereon will be 30 per cent. instead of 45 per cent. At present Canada is by far the largest purchaser of American automobiles, while the Canadian car on this side of the border is a rarity.

Will Manufacture Releasing Tire Valve.

For the purpose of manufacturing a patented tire valve which releases or "blows off" when the desired pressure is obtained, the Ohio Auto Accessory Co. has been organized in Columbus and incorporated with \$30,000 capital, under the laws of Ohio. A plant has been leased on North High street. The officers of the company are E. J. Harth, of Cincinnati, president; Nathan Meyer, of Columbus, vice-president; William Bott, treasurer; A. E. Shotford, secretary; W. C. Wentworth, who is the inventor of the valve, general manager.

Cole to Erect Four Story Addition.

In addition to purchasing the factory on East Washington street which it occupies, the Cole Motor Car Co., of Indianapolis, last week bought the adjoining real estate, on which it immediately will erect a four story concrete building, 100 x 190 feet, at a cost in excess of \$50,000. When completed, part of the new structure will be used for the body work of the Cole cars, which now is performed in detached but nearby buildings, the entire plant thus being brought under one roof.

Rudd Purchases Detroit Top Plant.

W. H. Rudd, a resident of Detroit, who conducts an automobile top plant in Walkersville, Ont., has purchased the assets of the embarrassed United States Auto Top Co., of Detroit, and will continue the business at 961 Beaubien street. It will be operated, however, under the style of the Rudd Auto Top Co.

McCUE AND SUPERIOR AMALGAMATE

Hartford and Buffalo Axle Manufacturers Merge Under Former's Name—McCue is Made President.

What was the Superior Axle & Forge Co., of Buffalo, N. Y., now is the McCue Co., and C. T. McCue is its president and general manager.

The proceeding represents a consolidation of the Superior company and the McCue Co., of Hartford, Conn., which has been in process of negotiation for several months. It was consummated late last week when the new McCue Co. was incorporated under the laws of New York with \$700,000 capital, of which \$650,000 has been paid in.

The incorporators are C. T. McCue, of Hartford, and J. W. Lansing, B. H. Bean, Ira T. Gleason and H. A. Kamman, of Buffalo. Following the incorporation, Mr. McCue was elected president and general manager of the company, Mr. Lansing, vice-president and treasurer, Mr. Bean secretary and H. T. Doll, assistant secretary-treasurer.

The McCue Co., of Hartford, was organized under the laws of Connecticut in December, 1904, and has made a name for itself as a producer of axles, indeed it has had more business than it conveniently could handle. The Superior Axle & Forge Co., on the other hand, was formed only last year, and began operations in January last in a big and distinctively modern plant in Buffalo, located opposite the Pierce-Arrow factory. As it was able to take care of more business than had come its way, the conditions existing facilitated the consolidation of the two companies, and as both plants will be continued, Mr. McCue will be able to handle all—and more—of the Western orders that were within his reach but which the overtaxed facilities of his Hartford property obliged him to turn away or to remain out of the bidding. He himself will hereafter make his headquarters in Buffalo.

In addition to the I-beam and finished axles and the steering arms and knuckles produced by the original McCue Co., the new concern will go heavily into the manufacture of drop forgings, the Buffalo plant including in its equipment drop and steam hammers of from 1,500 to 10,000 pounds capacity.

Mitchell-Lewis Forms London Company.

The Mitchell-Lewis Motor Co. has incorporated its British branch under the style the Mitchell-Lewis Motor Co. of London, Ltd., with an authorized capital of £1,000 in £1 shares. H. Plow and C. R. Andrews are named as the first directors. Plow only recently went from the Mitchell factory to take charge in London.



Seattle, Wash.—Automobile Exchange changes name to Motor Sales Co.

Detroit, Mich.—Hunter Auto Lock Co., under Michigan laws, with \$25,000 capital. Corporators—John W. Hubbard, F. C. Steck, Thomas Ahearn.

Seattle, Wash.—Washington Auto Tire Filler Co., under Washington laws, with \$50,000 capital. Corporators—W. G. Swallow, F. R. Pendleton, B. H. Loseless.

New Orleans, La.—Kreher Auto Co., under Louisiana laws, with \$10,000 capital; to deal in motor vehicles. Corporators—Charles, Bertha and Charles W. Kreher.

Des Moines, Ia.—Moyer Automobile Co., under Iowa laws, with \$5,000 capital; to deal in automobiles and other motor vehicles. Corporators—W. E. and E. B. Moyer.

Boston, Mass.—Motor Car Co., under Massachusetts laws, with \$25,000 capital; to deal in automobiles, and other vehicles. Corporators—W. H. Vinal, of Brookline; S. S. Anderson, of Boston.

Augusta, Me.—The Bernstein Spring Wheel Co., under Maine laws, with \$2,000,000 capital; to manufacture, sell, buy and deal in wheels for automobiles. Corporators—E. M. Leavitt and others.

Cambridge, Mass.—Collier Automobile Goggle Co., under Massachusetts laws, with \$100,000 capital; to manufacture automobile goggles. Corporators—G. B. Collier, Cambridge; W. E. Furniss, Somerville.

Camden, N. J.—Shanklin Pneumatic Wheel Co., under New Jersey laws, with \$250,000 capital; to manufacture wheels for vehicles. Corporators—F. R. Hansel, W. F. Eidell, J. A. McPeak, all of Camden.

Kansas City, Mo.—Sweeney Automobile School Co. of Kansas City, under Missouri laws, with \$5,000 capital; to operate an automobile school. Corporators—E. J. Sweeney, Sam Sebree, Ralph S. Page.

Chicago, Ill.—Auto Light & Mfg. Co., under Illinois laws, with \$5,000 capital; to manufacture and deal in automobile lights and sundries. Corporators—Frank L. Winslow, E. J. Lutwyche, W. L. Puffer.

Chicago, Ill.—Automatic Appliance Co., under Illinois laws, with \$5,000 capital; to manufacture and deal in automobiles, motorcycles, bicycles, etc. Corporators—Stephen Velie, Samuel Breakstone, Sarah Procktor.

Norwich, N. Y.—Navoe Auto Co., under New York laws, with \$500,000 capital; to promote and deal in patents, business enterprises, factories, etc. Corporators—L. M. Foster, J. H. White, H. A. Clark, all of Norwich.

Wilmington, Del.—Belt Cushion Tire Co.,

under Delaware laws, with \$1,800,000 capital; to manufacture tires for automobiles and other vehicles. Corporators—W. N. Akers, M. C. Taylor, W. J. Maloney, all of Wilmington.

Terre Haute, Ind.—The Railway & Automobile Grease Cup Co., under Indiana laws, with \$75,000 capital; to manufacture and sell automatic dust-proof grease cups. Corporators—G. J. Thomson, R. R. Armstrong, D. L. Brown.

Camden, N. J.—City Electric Omnibus Co., under New Jersey laws, with \$500,000 capital; to manufacture electric passenger buses and other vehicles. Corporators—F. R. Hansell, J. A. McPeak, I. C. Clow, all of Camden, N. J.

Cleveland, Ohio—Parsch Auto Livery Co., under Ohio laws, with \$1,000 capital; to operate an automobile livery service. Corporators—J. A. Burke, Charles A. Aaron, Wm. M. Byrnes, R. M. Schro, Charles A. Burke.

Detroit, Mich.—Reliance Auto Express Co., under Michigan laws, with \$15,000 capital; to deal in and rent automobiles and motor vehicles. Corporators—Chase Soule and Chase Soule, of St. Albans, Vt., and Elmer F. Soule, of Detroit.

New York, N. Y.—Auto Lighting Exchange Co., under New York laws, with \$100,000 capital; to manufacture and deal in storage batteries and lighting supplies. Corporators—W. H. Heim, A. F. Johnson, T. F. Axtell, all of New York City.

Philadelphia, Pa.—The Philadelphia Motor Co., under Delaware laws, with \$100,000 capital; to manufacture and deal in automobiles, motors, gas engines, etc. Corporators—J. F. Green, Philadelphia, Pa.; J. L. Wolcott, H. R. Martindale, Dover, Del.

San Antonio, Texas—The San Antonio Wheel Co., under Texas laws, with \$500,000 capital; to manufacture automobile wheels exclusively. Corporators—J. O. Howard, of San Antonio, president; E. L. Farnsworth, of Waco, secretary; and others.

New York City, N. Y.—Eureka Safety Crank Co., under New York laws, with \$50,000 capital; to manufacture safety cranks for motors and engines. Corporators—L. Bartlett, of Englewood, N. J.; G. W. Peck, New York; S. L. Bevan, Orangeburg, N. J.

North Tonawanda, N. Y.—The Front Drive Motor Co., under New York laws, with \$50,000 capital; to manufacture motor trucks, engines, machinery, electrical appliances, etc. Corporators—W. Christie, F. J. Adler, W. A. Fleming, all of New York City.

Pocahontas, Va.—Southwest Virginia

Motor Co., Incorp., under Virginia laws, with \$10,000 capital; to deal in motor vehicles, accessories and maintain a garage. Corporators—W. L. Mustard, W. H. Walters, J. Walter Garybeal, James H. McNeer.

Buffalo, N. Y.—The McCue Co., under New York laws, with \$700,000 capital; to manufacture electric, gasoline and steam vehicles. Corporators—J. W. Lansing, I. T. Gleason, B. H. Bean, H. A. Kamman, of Buffalo; C. T. McCue, of Hartford, Conn.

Des Moines, Ia.—Iowa Auto Tire Filler Co., under Iowa laws, with \$100,000 capital; to fill tires for automobiles and motor cars. Corporators—Thomas W. McNear, Thomas W. McNear, Jr., W. C. Nelson, E. Warren Doolittle, William A. Graham, all of Des Moines.

New Orleans, La.—Pelican Garage & Automobile School, Limited, under Louisiana laws, with \$25,000 capital; to operate a school of automobile instruction, and to buy, sell and deal in automobiles and supplies. Corporators—Albert Coquenheim, James R. Stewart, William F. Denny.

Louisville, Ky.—Oldsmobile Co. of Kentucky, under Kentucky laws, with \$10,000 capital; to manufacture, buy and sell all kinds of motor vehicles, including aeroplanes. Incorporators—T. F. Smith, of Louisville, three shares; R. N. Mosher, of Lansing, Mich., three shares; W. J. Mead, of Lansing, 94 shares.

Increases of Capital.

Waukesha, Wis.—Waukesha Motor Co., from \$100,000 to \$200,000.

Detroit, Mich.—Wolverine Auto Supply Co., from \$2,500 to \$10,000.

Recent Losses by Fire.

Hazleton, Pa.—Alvin Markle's garage and three cars burned. Loss, \$25,000.

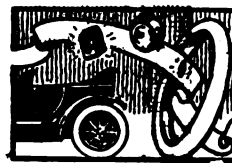
Jenkintown, Pa.—Isaac Silverman's garage and stable destroyed. Total loss, \$50,000.

Chicago, Ill.—The Hub Garage, 24-28 West 19th street, and six automobiles destroyed. Loss heavy.

Bad Axe, Mich.—Buick Garage, George Kerr, owner, destroyed and nine cars burned. Loss, \$20,000.

Philadelphia, Pa.—Locomobile Co.'s garage, 245 North Broad street, burned; contents saved. Loss, \$1,000.

Minneapolis, Minn.—Standard Automobile Co., 1204 Hennepin avenue; garage and four cars burned. Loss, \$7,500.



Roy Gibbons has opened a garage and machine shop on Main street, Elroy, Wis.

Elmer Bleick and A. F. Schroger have purchased the business of the Walter Auto Co., of Appleton, Wis.

Frank Lowater has opened salesrooms at Chippewa Falls, Wis. He handles Parry cars and Metz runabouts.

W. W. Keefer has broken ground for a garage at 4302 Grant boulevard, Pittsburg, Pa. It will be of brick and will cost \$2,000.

Edward Cronin is building a garage on Maxfield street, New Bedford, Mass. It will be one story high, of cement blocks.

A new repair shop and garage has been opened on Central avenue, Titusville, Pa., under the style the George B. Smith Garage.

Under the style Schiff & Baum a new concern has "opened up" in Dublin, Ga. They will deal in both automobiles and supplies.

Galen Crow, a capitalist of Guthrie, Okla., is building a fireproof garage on the ground of the former Airdome. He purposes operating a renting service.

E. E. Whitten is building a brick garage on Washington street, between Eighth and Ninth streets, Denver, Colo. It will cost, when complete, \$10,000.

At an estimated cost of \$5,000, Joseph C. Trees is building a garage on Highland avenue, Pittsburg, Pa. It will be two stories high, with plate glass front.

John Shinn has erected a brick garage on Court street, Houma, La. He will do general repair work, in addition to operating an automobile livery service.

Work has commenced upon the erection of a new garage at the northeast corner of Law and Court streets, Allentown, Pa. E. A. Krause is building it, at a cost of \$7,500.

A two-story brick garage is in course of construction at 444-48 North Sixtieth street, Philadelphia, Pa., which will cost, when complete, \$7,000. Stephen R. Manley is the owner.

The Oxnard Garage & Machine Shop, of Oxnard, Cal., has been consolidated with the Dunn Mfg. Co., of the same place. The business will be continued under the latter name.

Karl J. Fronheiser, bookkeeper of the Union National Bank at Johnstown, Pa., has resigned his position and opened an automobile salesroom. He will handle the National line of cars.

Milwaukee has another exclusive electric

garage in the Yahr Electric Vehicle Garage, which just has been opened at 241 Wisconsin street. The concern will handle the Boorland electric.

The Lake Shore Tire Shop is the style of a new concern which has been established at Sheboygan, Wis. It will make a specialty of repairing and vulcanizing, as well as selling automobile tires.

The Wilson Goucher Co., an automobile tire salesroom and "hospital," has opened up in Washington, D. C., at 1705 Fourteenth street. Diamond tires will form the chief stock-in-trade of the new concern.

A. W. Shattuck, vice-president and manager of the Rambler Garage, Milwaukee, Wis., has resigned his position. Until a successor can be appointed, M. B. Gilman, from the Rambler factory, will be in charge.

Henry Ruel, of Pittsfield, Mass., has purchased a large piece of land at the corner of Depot and Maple streets, North Adams, Mass., and will erect thereon an up-to-date garage. It is to be opened early in the fall.

G. J. Batzer, formerly superintendent of the Rapid Motor Vehicle Co., has branched out for himself and opened a garage on Water street, Pontiac, Mich. The building is two stories high and will be known as the Economy Garage.

H. B. Hannable has been appointed district manager of the Regal Motor Car Co., for the states of Washington and Oregon, which formerly were covered by the San Francisco branch. A new branch is to be established at Spokane.

A large sales and service department is being erected for the Halladay Motor Car Co., of Chicago, Ill., at 2029 Michigan avenue. It will be two stories high, of concrete and marble, and fitted throughout in the most modern manner.

L. J. Remington, half owner of the Fond-du-Lac Auto & Tire Repair Co., has sold his interest to Henry Schwartz, formerly of the Clark Motor Co. The concern is located at the corner of Main street and Western avenue, Fond du Lac, Wis.

Dr. H. C. Wendel and Joseph Berning, who were concerned in the recent receivership proceedings against the Cadillac Automobile Co. of Cincinnati, have formed the Guarantee Auto Co., in Cincinnati, Ohio. They will handle Regal and Republic cars.

A petition in involuntary bankruptcy has been filed against the Atlanta Motor Car Co., of Atlanta, Ga., by the Atlanta Buggy Co., the Standard Oil Co., and other creditors, whose claims aggregate about \$2,300. The company is incorporated for \$15,000,

and is said to have consented to proceedings against it.

The Ogden Garage is the style of a new establishment which has been opened on Ogden avenue and Parmenter street, Menominee, Mich. William Jensen is the manager and chief owner of the concern, which is incorporated as the Ogden Garage Co.

The Lane & Lynch Auto Co., which heretofore has been located on Locust street, near Spring street, St. Louis, Mo., has found its quarters too small and moved to 3206 Locust street. The new store is 32 x 100 feet and thoroughly modern in every respect.

Frank B. Cooke, of the Oneonta Auto Co., Olean, N. Y., has purchased a large plot of ground on Market street, in the same town, on which to erect another large garage. The new building will be of reinforced concrete throughout, two stories high, 60 x 90 feet.

Philip Heup has purchased the garage of the Menasha Auto Co., on Milwaukee street, Menasha, Wis., succeeding Rudolf Felch as owner. The garage was established about a year ago under the style Felch & Sutton, but for the past six months has been owned solely by Felch.

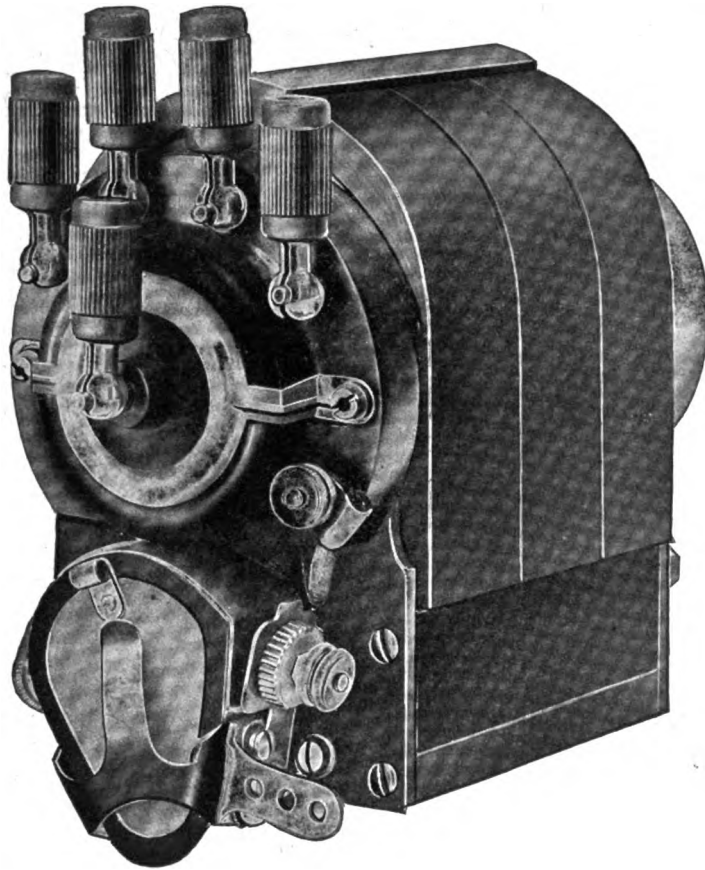
L. A. Holthouse, proprietor of the Fashion Stables, has added automobiles to his livery business and built a garage adjoining his stables on First street, Decatur, Ind., with entrances on two parallel streets. In addition to doing a general automobile livery business he will sell Overland cars.

The Capital Garage Co. is the style of a company which just has been organized in Montpelier, Vt., with quarters in the Blanchard block on Main street. The company is composed of: W. H. Farrar, president; L. J. Emmons, vice-president; M. H. Farrar, treasurer; B. E. Bailey, secretary.

Internal dissensions among the officers and directors of the F. A. Trinkle Automobile Co., Denver, Colo., came to a head on July 18, when Judge Shattuck, of the district court, ordered two of the directors, J. A. Pierce and F. A. Cover, to call a stockholders' meeting and to amend the articles of the corporation so as to provide for five directors instead of three. The court was petitioned so to do by F. A. Trinkle, president and majority stockholder of the company, who stated that this step was taken to prevent the two directors named from squandering the assets of the concern, from unnecessary extravagance, etc. The company operates a salesroom and garage at 1555 Tremont street.

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PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.
 Joseph Goodman, President. R. G. Betts, Treasurer.
 F. W. Roche, Secretary
 154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
 Single Copies (Postage Paid) 10 Cents
 Foreign and Canadian Subscriptions \$3.00
 Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
 Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, JULY 27, 1911.

The Way to Suppress Horn Tooters.

The campaigns against unnecessary street noises are laudable; the chief trouble is that the campaigns themselves are usually full only of sound and fury. They arise only to die out with little or no accomplishment. That there is too much tooting of automobile horns and that the "too much" constitutes unnecessary noise is undoubted, but writing letters of protest to the public press and generally railing at the offense serves no purpose. Action is necessary.

In some communities laws already exist which, if enforced, would subdue the evil; in others such laws should be enacted and enforced, for without enforcement no law is worth the paper upon which it is printed, which is the real trouble with most laws. It is folly to contend that the electric warning signals now employed on automobiles are unnecessary; the bulb horn long since was proven inadequate for all purposes; the newer and louder horns contribute to public safety; they cannot be dis-

pensed with. The way to prevent their abuse. The way to abate the unnecessary noise which, on occasion, they are made to create is plain enough; their use should be regulated by law, and it is a wholesome sign that the foremost makers of such devices—the Klaxon—are lending themselves to such a campaign.

If one-half of the energy used in making arrests for violation of smoke ordinances were directed against the chronic horn tooters, the evil would be more easily and as effectively checked.

New Jersey and Other States.

Having attempted by threats or bluffs, or both, to coerce the Legislature of New York into doing his bidding, and having failed in the effort to force New York to enact a repulsive law, it was quite natural that New Jersey's Commissioner of Motor Vehicles should put up the bars against New Yorkers. Had he failed to do so, he would have become more of a laughing stock than has been the case since he so suddenly and so tardily became thoroughly infused with the bile of Frelinghuysenism.

There was a time when the commissioner appeared to be a high minded official, unfortunately placed, but seemingly he has heard his master's voice in no uncertain tones, and has degenerated into a mere political tool who is obeying orders to save someone's political face, even though the whole State suffers and is made ridiculous. The manner in which he brought to bear a provision of the New Jersey law clearly designed to exclude offenders and not entire populations suggests nothing else, the commissioner himself being a mere employee and not an elected official of the State.

When first he brought the exclusion order to bear against Pennsylvania, he set up as an excuse that in that State New Jerseymen were being subjected to unwarranted arrest and "persecution." He could find no such excuse in New York. He could prattle only about "real reciprocity," which he claims has its abiding place only in New Jersey, although New Jerseymen can enter New York and every other State free of charge whenever New Jersey removes its miserable demand for a dollar's worth of the flesh of all non-residents. In fact, New Jerseymen can freely enter Connecticut and several other States in spite of their State's demand, and nothing better serves to illustrate the utter inconsistency and utter untenability of the

New Jersey law and the commissioner's definition of "genuine reciprocity."

Connecticut charges New Jerseymen nothing, but no resident of Connecticut dare turn an automobile wheel in New Jersey until he has yielded up a dollar. When recently a resident of Connecticut remarked this peculiar phase of "reciprocity" to the New Jersey commissioner and asked for light, the best the commissioner could do was to forward a blank form showing how the Connecticut motorist could pay the much beloved fee. Taking the New Jersey view, and in the interests of its residents, it would seem therefore that the Connecticut officials are lax in their duty if they fail to insist that New Jersey shall adopt their truly genuine form of reciprocity and cease "shaking down" the citizens of the Nutmeg State.

However, whenever New York or the rest of the United States bows to the dictates of a New Jersey employe or to the demands of a portion of the New Jersey Legislature and is coerced into copying its offensive and un-American law, it will be time for the residents of such states to hang their heads for very shame. There's a day of reckoning coming for a handful of New Jersey politicians, and if the motorists of the State do not hasten it, they are unworthy of the right to cast a ballot.

Activity in the Materials Market.

After many months of sluggishness a brisk demand has sprung up in the material market that is causing numerous salesmen and dealers associated with the automobile industry to resume their wonted air of cheerfulness. Not that the conditions which have prevailed have been the cause of undue pessimism, but rather that the slackened demand has proved one of those puzzling conditions that sometimes test the wisdom of even the most experienced traders to explain. Just why automobile builders should be able to go on producing cars seemingly at an undiminished rate when they had cut down their requisitions, in some instances almost to the vanishing point, was something of a poser. It began to appear as though the art of making something out of nothing at length had been discovered.

With the renewed call for parts and material, however, the situation has been made clearer. Following their previous manufacturing season, many makers found themselves overstocked with materials. Orders for stated delivery had been placed away

ahead, and with the completion of the models which now are being closed out at retail and the accompanying let-up in activities, it was found that stockrooms were becoming crowded with no immediate prospect of relieving the congestion. Thus it happened that many parts and materials salesmen were turned from door after door with light order books. That they should receive such receptions at a moment of apparent prosperity in the industry and when the business world at large was in no apparent disquietude, was what caused brows to wrinkle.

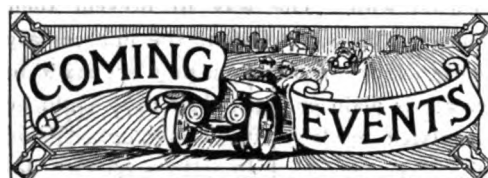
The early summer and prolonged dry season of the present year have caused a noticeable quickening in the entire industry, the retail world is experiencing no difficulty in moving its cars. Rather, in some instances, the difficulty is entirely one of supplying the demand. Simultaneously the manufacturers are beginning to run short of their hoarded materials and are buying freely. It is stated on good authority that there has been no recent year when car makers were so nearly cleaned up on raw stock as they are at present. Consequently the hosts of alarmists once more are put to scorn.

"Seasons" in Truck Demonstrations.

In measure with the growth of the opinion that there no longer is a distinguishable "season" in respect to the sale of pleasure cars, it becomes equally apparent that there is a commercial vehicle season; if not in the sale thereof, at least in the demand for demonstrations. Demonstrations, of course, are associated in the mind of the eager tradesman with actual sales, though sometimes the association is exceedingly remote. So it appears to be when it comes to motor trucks and delivery wagons.

Assuming that there is a reason for all things, and analyzing the situation no more than casually, it would seem that the truck demonstration "seasons" come and go in waves, like the hot weather—coincidentally with it in fact. A sort of off-season rush also has been observed when heavy snows cover the ground. Always it is heaviest when horses are slipping or otherwise suffering.

The demonstration evil is familiar enough in the automobile industry; but the introduction of the rush feature is a decided novelty. Moreover, the plight of the salesman is not without its humorous element,



July 22-28, Minneapolis, Minn.—Minnesota State Automobile Association's third annual endurance run from Minneapolis to St. Paul to Helena.

July 29, Cincinnati, Ohio—Hill climb under auspices Cincinnati Automobile Dealers Association.

July 29, Philadelphia, Pa.—Racemeet under auspices of Quaker City Motor Club at Point Breeze track.

August 1, Chicago, Ill.—Reliability contest for motor trucks under auspices of Chicago Evening American.

August 3-4-5, Galveston, Tex.—Racemeet on Beach under auspices of Galveston Automobile Club.

August 7, Chicago, Ill.—Chicago American's reliability run for commercial vehicles.

Aug. 8, St. Louis, Mo.—Reliability contest under auspices St. Louis Automobile Manufacturers and Dealers Association.

August 12, Detroit, Mich.—Track race-meet, State fair grounds.

August 12, Philadelphia, Pa.—Quaker City Motor Club's annual reliability trial for pleasure cars.

Aug. 12, Worcester, Mass.—Worcester Automobile Club's sixth annual hill climb on Dead Horse Hill.

Aug. 17, St. Louis, Mo.—Reliability contest under auspices Missouri Automobile Association.

August 25-26, Elgin, Ill.—Chicago Motor Club's national stock chassis road races.

Sept. 1, Oklahoma, Okla.—Reliability contest under auspices of the Daily Oklahoman.

Sept. 2-4, Brighton Beach, N. Y.—Racemeet under management of E. A. Moross.

Sept. 4, Denver, Col.—Denver Motor Club's racemeet on motordrome.

September 4-5, Brighton Beach, N. Y.—Twenty-four hours race under management E. A. Moross.

Sept. 7-8, Philadelphia, Pa.—Philadelphia Auto Trade Association's racemeet.

Sept. 7-9, Hamline Track, Minn.—Minnesota State Automobile Association's racemeet.

Sept. 7-10, Buffalo, N. Y.—Reliability contest under auspices Automobile Club of Buffalo.

Sept. 9, Bologna, Italy—International road race for the Italian Grand Prix over the Bologna circuit.

Sept. 12-13, Grand Rapids, Mich.—Michigan State Automobile Association's racemeet.

Sept. 15, Knoxville, Tenn.—Track meet, Appalachian Exposition.

Sept. 16, Syracuse, N. Y.—National Circuit track meet, State Fair grounds.

Sept. 18-20, Chicago, Ill.—Reliability contest for motor trucks, under auspices of Chicago Motor Club.

Sept. 23, Lowell, Mass.—Road races under auspices of Lowell Automobile Club.

Oct. 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers' Association's open air show.

Oct. 3-7, Danbury, Conn.—Track meet under auspices Danbury Agricultural Society.

October 7, Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

Oct. 9-13, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

Oct. 12-22, Berlin, Germany.—International automobile show in Exhibition Hall, Zoological Garden.

Oct. 13-14, Atlanta, Ga.—Racemeet under management H. C. George.

Oct. 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

Nov. 1, Waco, Texas—Racemeet under auspices Waco Automobile Club.

Nov. 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

Nov. 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

Nov. 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

Nov. 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

Nov. 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

Nov. 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

Nov. 30, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

Dec. 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

especially when the once interested prospect becomes indifferent as soon as the falling or rising thermometer indicates that he can safely put his horses to work again. It might not be so humorous, were it not

that, in his eagerness to prove the worth of his product, the salesman frequently drives it beyond its legitimate capacity, probably to the secret amusement of the "wise" teamster.

DE PALMA AND TOWERS THE LIONS

They Make Biggest Hauls at Guttenberg Meet—Runaways the Rule and Small Cause for Excitement.

Ralph De Palma in a Simplex was the star performer at the postponed racemeet held Saturday last, 22nd inst., on the Guttenberg (N. J.) track. About 3,000 persons saw him finish first in two of the six contests on the card, including ten miles free-

with piston displacement under 301 cubic inches, seven cars came in line. De Palma drove a new Mercer, it having been delivered to him the evening before the meet. He made a bad start, however, and at the end of the first mile, with Towers in an E-M-F leading, he was in fifth place. Towers ran away from the others and finished away ahead in 5:28 $\frac{3}{4}$.

In ten miles for cars not exceeding 451 cubic inches displacement De Palma and the Mercer showed to better advantage. The outcome was in doubt until the finish.

ond place. The pair alternated in the lead for a mile, after which Lainberg shook off Tower and set sail for Rouse. At the end of the ninth mile Rouse had engine trouble with the Marmon and Lainberg took the lead on the back stretch and won, easing up, in 11:13 $\frac{1}{2}$. Rouse was second and De Palma snatched third place from Tower almost on the tape.

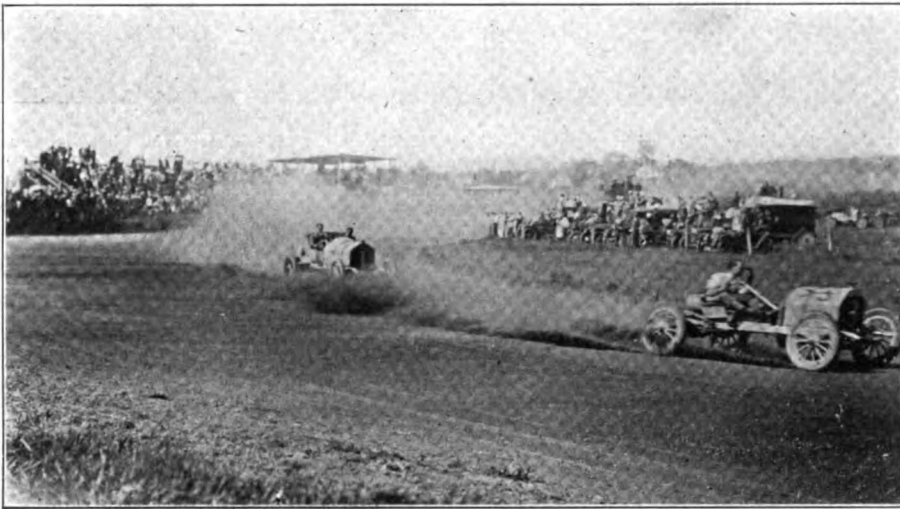
De Palma started his winnings in the fifth event when he abandoned the Mercer for the Simplex. This was open to cars of 601 cubic inches displacement and he won with ease. Lainberg started his National across the line ahead of the starting gun and De Palma lost a few seconds protesting. However, he gained ground rapidly and went into the back stretch ahead of the National, followed by the Marmon and the Jackson.

The summary:

Five miles, non-stock, class E—Open to any car or chassis under 231 cubic inches piston displacement—Won by Towers (E-M-F); second, Craig (Paige-Detroit); third, Ferguson (Lancia). Time, 5:47 $\frac{1}{2}$.

Five miles, non-stock, class E—Open to any car or chassis under 301 cubic inches piston displacement—Won by Towers (E-M-F); second, Burke (Pullman); third, Craig (Paige-Detroit). Time, 5:38 $\frac{3}{4}$.

Match race at five miles between Du Closne (Staver-Chicago) and Gillam (Correja)—Won by Du Closne. Time, 6:40 $\frac{1}{2}$.



TOWER LEADING LAINBERG IN THE TEN MILES RACE

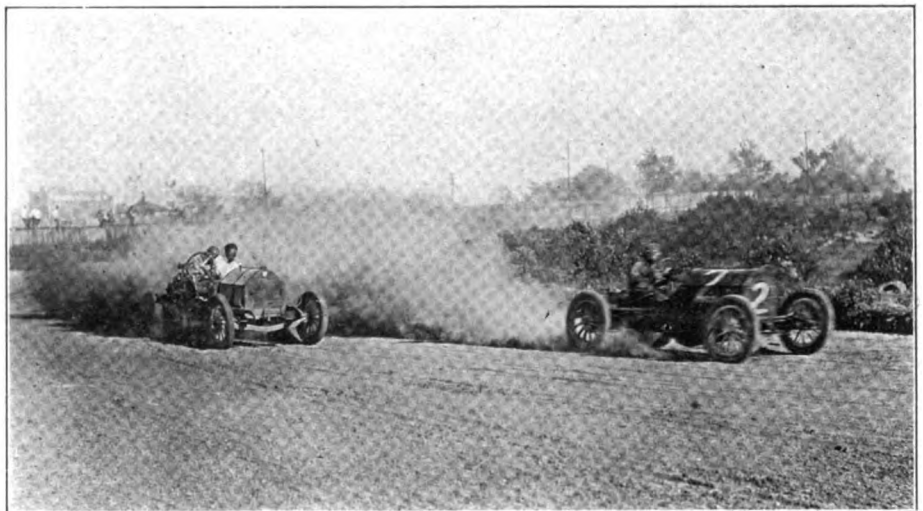
for-all, the feature event of the day. They also witnessed his defeat in two other races, when he drove a car that was new to him.

Jack Towers in a little "red-arrow" E-M-F divided honors with De Palma, capturing two events by good margins, in one of which De Palma, in a Mercer, started but withdrew at the end of the fifth mile.

The feature event was the free-for-all, in which there were six starters. Rouse, driving a Marmon, got off in the lead, closely followed by Lainberg in a National, with De Palma's Simplex third. The latter passed the leaders on the first turn and tore away from them down the back stretch. At the first mile De Palma led by fifty yards, with Lainberg in second place. Rouse's Marmon was third with the Pullman a close fourth. The Jackson dropped out at the end of the mile. At the finish the Simplex led by 50 yards, De Palma crossing the line in 10:31 $\frac{1}{2}$.

There was no struggle in the first event, in which there were four starters. It was at five miles for non-stock cars with piston displacement under 231 cubic inches. Towers in the EM-F was the quickest at the getaway and on the first turn led Craig in a Paige-Detroit by little more than a length. The other two cars fell back, Ferguson driving the Lancia in third place. Towers finished about a quarter of a mile in front of Craig, who was an equal distance ahead of Ferguson. The time was 5:47 $\frac{1}{2}$.

In the second event at five miles for cars



SHOWING DE PALMA IN THE ACT OF LAPPING THE STAYER CAR

There were six starters, Rouse in a Marmon getting off in the lead. Tower in an E-M-F was second, a half a length away, with De Palma in the Mercer trailing a length behind. The first three cars raced down the back stretch abreast while Lainberg, in the National was immediately behind waiting for an opportunity to get around them. They continued in close order until the third mile, when Lainberg found an opening and shot the National ahead of De Palma's Mercer. Lainberg pulled away and for the next three laps it was a bitter struggle between Lainberg and Tower for sec-

Ten miles, non-stock—open to any car or chassis under 451 cubic inches piston displacement—Won by Lainberg (National); second, Rouse (Marmon); third, De Palma (Mercer). Time, 11:15 $\frac{1}{2}$.

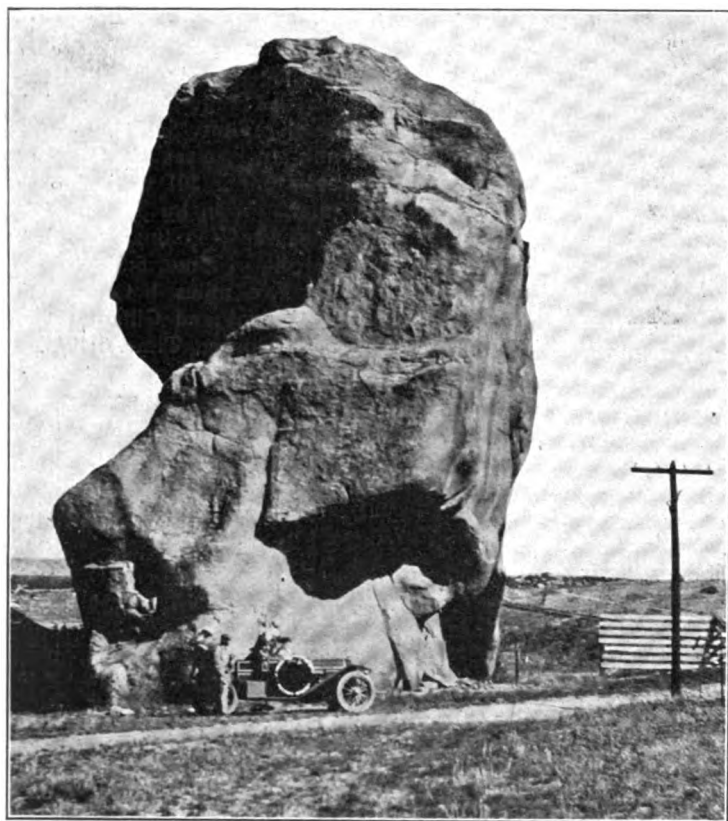
Ten miles, non-stock, class E—open to any car or chassis under 601 cubic inches piston displacement—Won by De Palma (Simplex); second, Lainberg (National); third, Rouse (Marmon). Time, 10:43 $\frac{1}{2}$.

Ten miles, non-stock, class D, free-for-all—Won by De Palma (Simplex); second, Lainberg (National); third, Rouse (Marmon). Time, 10:31 $\frac{1}{2}$.

MOTOR CAR RELIABILITY SHOWN IN ODD AND OUT OF THE WAY USES



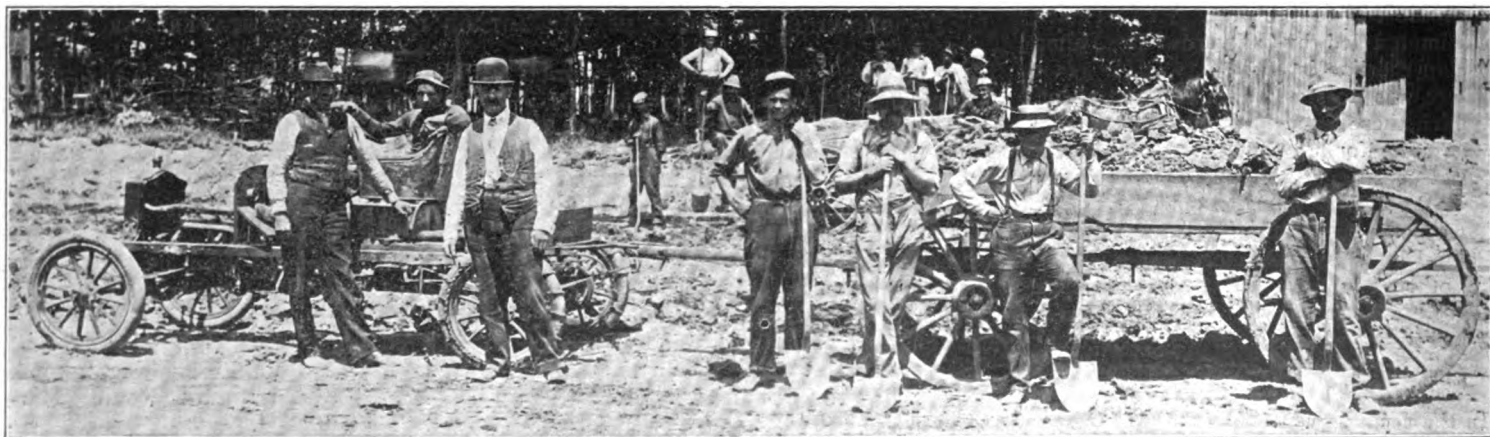
Motor Traction in Logging Operations—It has been said that about the only work for which the commercial vehicle is unsuited is in the woods, where roads are poor or non-existent. The picture refutes the contention and shows a Sampson truck in use in a New Hampshire forest.



"Seeing America First"—A Midland Forty transcontinental pathfinder pictured amid the scenic wonders of the Rockies. Halting beside a monolithic sentinel near Buena Vista, Colo.



Where Solidity Counts—A captive balloon requires a firm anchorage. The Mais truck successfully "holding down" one of 100,000 cubic inches capacity at the Indianapolis Speedway.



Motor Traction in Rural Road Building—An Indiana contractor by using his Maxwell car to haul an ordinary farm wagon has been able to supplant five teams. The picture shows the rough and ready nature of the arrangement, which is far more efficient than at first might appear.

MR. SMITH EXCLUDES NEW YORKERS

**Failing to Coerce New York Legislature,
He Puts up Bars in New Jersey—Non-
Resident Licenses Withdrawn.**

Like Pennsylvania and Delaware folk, New Yorkers no longer can enter New Jersey, which popularly is supposed to be a part of the United States. Mr. Smith says so, and what Mr. Smith says goes—in New Jersey. He has brought the Chinese exclusion act to bear, and though it clearly was meant to exclude only offenders and other undesirables, Mr. Smith and his masters discovered that it gave them power to exclude all the world, if they so desired. And the motorists of all of three States are on Smith's list of "undesirables." He handed down his proclamation affecting New Yorkers on Monday last, when he canceled all of the New Jersey licensing agencies in New York and instructed that no more eight-day non-resident licenses be issued.

Mr. Smith has not suddenly become President or Emperor of the United States, nor even King or Governor of New Jersey. He never was elected to any office. He merely is holding down a salaried job in Trenton, where the New Jersey politicians gather and where "Joe" Frelinghuysen, who fathered the exclusion act, plays the part of a Senator, when he is not busy with insurance, and other affairs in New York City. Smith's job is that of Commissioner of Motor Vehicles, which was created by Frelinghuysen; it pays something like \$30 per week. But as commissioner, he can say who shall or shall not enter the State.

Of course, the law isn't exactly an exclusion act; Smith and some others call it a reciprocity law, with New Jersey defining the extent and price of reciprocity. If the law of your State is unlike the law of Mr. Frelinghuysen, it is not reciprocal, and if your State does not wheel into line with New Jersey and change its law, Mr. Smith is likely to get mad and keep you out, unless you pay the New Jersey price. No other State in the Union has such a law as New Jersey, but Mr. Frelinghuysen, what cares he? He's a regular law manufacturer and knows what's what; the rest of the world knows nothing.

Mr. Smith was not always such a "hot one." Some of his friends used to suggest that applying certain phases of the law was distasteful to his sense of justice. But something came over the spirit of Smith's dreams during recent months and he became a "bold, bad man." He shut out the people of Pennsylvania and Delaware, and conveyed the intimation or intimidation to the New York Legislature that if it did not alter its law to conform with New Jersey's, he, Smith, would shoo New Yorkers out of his State or make them pay the limit to

come in. According to one report he even went to Albany to impress his views in official circles. He is said to have returned to Trenton with a soul full of hope that he had forced the Empire State to do his bidding. But knowingly or otherwise, the New York Legislature gave Smith the laugh. It refused to be either coaxed or coerced. It adjourned on Friday with the New York law unchanged. Then Smith rose in his might. On Monday he sent forth his fateful order, calling in all the eight-day \$1 blanks that remained in New York and canceling the power of agents to issue them.

Now New Yorkers must pay \$3, \$5 or \$10 for New Jersey yearly licenses just like the Jerseymen themselves, and the Jerseymen they must pay from \$5 to \$25 to enter New York, according to the horsepower of their cars. Whenever New Jersey repeals its \$1 eight-day law, its citizens can come into New York without paying even a sou-markee.

Three More Start Globe-Girdling Tour.

Around the world in an automobile is the way P. J. Wires, of Indianapolis, Ind., proposes to combine business with pleasure. Being the owner of a large touring car he left that city on Tuesday last, accompanied by Mrs. Wires and R. W. Shank, headed for San Francisco. Wires, on account of failing health, has been forced to lead a life in the open air, and concluded to take the motor trip. The party expects to be gone between three and five years. It is proposed to camp out at night, instead of going to a hotel, and for this purpose a complete outfit is carried. Not being a wealthy man, Wires intends to make expenses by selling accessories, and collecting material for a book of his travels.

Arrest Upsets a Chauffeurs' "School."

Ralph R. Shaft, who conducted the Great Western School of Motormen at 219 Seventh street South, Minneapolis, Minn., has been arrested on a charge of grand larceny brought by John Criffin, one of the "pupils" of the "school," who claims that Shaft stole \$35 from him. The school advertised to make competent chauffeurs in four weeks and "guaranteed" eighty dollars a month to its "graduates." Shaft had been arrested on a similar charge some months ago, but was not indicted by the Grand Jury. Other complaints of a similar nature have been filed by three other "students" of the school.

For a National Association in Canada.

The Winnipeg Motor Trades Association is attempting to bring about the organization of a national association in Canada, where none exists. To that end it is in correspondence with the trade bodies in Toronto and Montreal. The idea in view is an organization that will deal not only with shows and other trade affairs but with racing and all other forms of competition.

"IF" BIGGEST ENTRY IN GLIDDEN

**Tour Will Occur "Sometime in September"
If—Eleven Entries in Hand and Nine-
teen More Are Needed.**

If—it's a little word, but full of meaning—if thirty entries are in hand by August 1, the Glidden reliability tour will occur "some time in September." It is not necessary to fix the date unless the thirty entries are in hand.

When the "some time in September" announcement was made, early this week, by the A. A. A. officials, the entries of exactly eleven cars had been recorded; which means that unless a great rush occurs within the next four days it will not be necessary to fix any date at all.

The eleven entries already booked are three Maxwell cars, three Abbott-Detroits, one Cunningham, one Oakland, one McIntyre, one Ohio and one Washington, each entered by its respective maker; and the Cunningham is designated "pace-maker."

Those possessed of good memories will recall that the Glidden tour originally was slated to occur June 21 to 29, but was postponed because—ahem! because of the reluctance of manufacturers to enter their 1911 models and their inability so early to nominate their 1912 productions. That this alleged cause of postponement was based on fact of a peculiar sort is made evident by the present list of entries, which shows that of the eleven cars only the three Maxwells are 1912 models.

If the thirty entries are received by Tuesday next, and if a date is set, the tour will traverse the route originally laid out, from Washington, D. C., to Ottawa, Canada, where there was a promise of ice cream and lemonade awaiting in June last.

Buffalo Sets Dates for Its Contest.

Buffalo motorists again will have an opportunity of competing for the Laurens Enos and other trophies, the Automobile Club of Buffalo having selected September 6, 7, 8 and 9 as the dates for its second annual reliability tour. It will cover a course of 800 miles in Western New York from Lake Erie to Lake Ontario. Following the precedent of last year each day's run of 200 miles will start and finish in Buffalo. The Enos trophy was won last year by Charles F. Monroe, in a Maxwell.

Galsters Heads New Automobile Club.

Petosky, Mich., now has an automobile club—the Petosky Auto Club. It was organized last week with these officers: President, John L. A. Galsters; vice-president, Guy G. Hankley; secretary, Homer Sly; treasurer, C. E. Church; directors, D. Charles Levinson, Clare Harding, W. S. Mesick and the officers.

THREE PERFECT IN WISCONSIN RUN

Technical Examination Marred Six Unclouded Road Scores—Babcock Captures Trophy for Private Owners.

August Jones, who drove a Cadillac, Harry Bisbie, who piloted a National, and William Jones, who handled a Case, were the only contestants who came through the six-day reliability run of the Wisconsin State Automobile Association July 17-22 with perfect scores. Of the nineteen cars which started from Milwaukee, as told in last week's Motor World, two dropped out and the seventeen others went through the 963 miles without serious mishaps.

The contest was unusual and praiseworthy in that it included a class for private owners, who were not required to undergo the final technical tests. Three owners competed for the special prize that was offered, which was won by J. D. Babcock, who drove a Franklin. One of the others, M. L. Stevens (Kissel), withdrew after the third day's run, on account of a broken spring.

Starting from Milwaukee Monday morning the 17th inst. on the first leg of the journey, the contestants went due north, Marinette being the objective point. Some of the best roads of the entire trip were traversed during these 190 miles, and only four penalties were imposed. George Browne, driving a National, got 10 points for losing a bearing on the rear axle; H. W. Stevens drew down three points for not stopping his Franklin at Port Washington the required three minutes; Jesse Mack lost ten for stopping his Petrel motor and three for taking on water. The Auburn, with C. Hacksdorf at the wheel, failed to report at the night control. The rear axle broke five miles South of Green Bay, and he remained over to replace it. Hacksdorf reached Marinette in time to check out the second day and was assessed 1,467 points.

Wausau residents gave the contestants a warm welcome at the completion of the 171 miles, which were covered on the second day. The start from Marinette was made at 7 o'clock in the morning and part of the roads covered on the first day were retraversed. Lunch was served at Shawano, where a large crowd greeted the visitors. From there the route led through the Menominee reservation, where some novel sights were encountered. It happened that the Indians were having their annual dance and the manoeuvres of the bucks were watched with interest by the motorists as they passed through. A short stop was made at Merrill. The rest of the trip was through a sea of mud, as rain, which began falling shortly after noon, made the going very bad. Emil Hokanson's Buick was the first in Wausau, and he was shortly followed by George P. Hewitt in a Buick and

Charles Merz in a National. The rest of the cars followed in good shape, and only three penalties were inflicted. C. Hacksdorf's Auburn was again unfortunate, being assessed nine points for arriving late. The Regal, entered by C. H. Delafield, was penalized 17 points also for being late, and J. D. Rockstead's Warren-Detroit lost 12 points for slipping a clutch.

The third day's run, the longest trip of the week—203 miles—was started under the most unpromising conditions, and only nine contenders retained their clean scores at nightfall. Mud of the slipperiest kind was encountered during most of the morning, but late in the afternoon a splendid macadam road led the motorists into La Crosse. Owing to the distance, no noon control was established. At Marshfield the local automobile club served lunch, while the cars were parked for twenty-five minutes. The roads from Marshfield to Black River Falls were very rough, and after the Falls were passed the highway was merely a bed of sand, with intervening stretches of clay and cobble stones until Sparta was reached, and the macadam road began. The penalties for the day were 16 points against J. Nicolozzo's Buick, for taping a gasoline pipe; 35 points against C. H. Delafield's Regal for taking oil and water and making adjustments, and three points against John Kemp's Overland for taking oil.

Leaving La Crosse, Lancaster, 128 miles, was the next night's control. It was between these two points that Lewis Strang, the famous driver, met his death, when the car went over an embankment, twenty miles from Richland Center. Strang was driving the members of the technical committee, and was hurrying ahead in order to reach Lancaster to check in the cars. This was the only accident of the run. As a mark of respect to the deceased pilot, crepe was worn on the arms of the motorists for the balance of the trip. The penalties imposed took away the perfect score of Diener (Ford), who was assessed one point for his failure to start the motor in time, the engine bucking on him and a half minute being consumed in cranking. C. H. Delafield's Regal lost 15 points and Dominick Nicolozzo's Franklin 2 points. Jesse Mack, who lost 10 points on the first day out, withdrew his Petrel on account of hub trouble, for which he had been penalized 227 points. M. L. Stevens also withdrew his Kissel car and shipped it back to Milwaukee owing to a broken spring.

It was 7 o'clock in the morning when the first car left Lancaster for the fifth day's run, headed for the night control in Jamestown, 159 miles distant. All along the route the dust lay on the road anywhere from two to six inches deep, and the progress of the cars was marked by a dense cloud, which was so thick behind each car that at times it was almost impossible to discern the road. There were only a few hills to climb, however, and they were easy ones. Waterbars, however, caused several

of the cars to be penalized. Madison was the noon control, and there the motorists were entertained by the Hokanson Automobile Co. Incidentally, Emil Hokanson, who won the sweepstake trophy last year, was put out of the clean score column because his Buick was penalized 9 points on account of adjustments. At Mineral Point a circus was encountered, and the double attraction brought out the whole town. All the cars reached the night control before the time scheduled, although short stops were made at Darlington, Dodgeville, Stoughton, Edgemere and Janesville.

It had been planned to make short stops in Racine and Kenosha on the way to Milwaukee, for the last 122 miles of the tour. No stop was made in Racine, however, but at Kenosha the officials of the J. I. Case Threshing Machine Co. met the motorists and thanked them for the sympathy extended on the death of their driver, Lewis Strang.

After the cars had checked in at Hotel Pfister, Milwaukee, they immediately proceeded to Fourth and Cedar streets, where the final tests were made. A course was laid out on Fourth street and the brakes were tested. Going at the rate which they were scheduled on the road, the cars were required to stop within fifty feet, and six cars were able to do this with foot and emergency brakes, thus getting a clean score on the test. These were Jonas's Cadillac, Bisbie's Imperial, Jones's Case, Browne's National, Wetmore's Krit and Diener's Ford. After this event the cars went to State street hill where a test of motors, transmission, clutch and gear set was made.

There were but four penalties imposed as the result of the last day's run, and six cars pulled into Milwaukee with perfect scores, but after the final tests but three had clean scores. They were the Cadillac, entered and driven by August Jones, the Imperial entered by the La Crosse Plow Works and driven by Harry Bisbee, and the Case car, entered by the J. I. Case Threshing Machine Co. and driven by William Jones.

The contestants in the private owners' class did not have to make the brake nor other tests in Milwaukee. Hacksdorf (Auburn) was unfortunate on the first two days out and lost 1,488 points, and M. L. Stevens having withdrawn, left J. D. Babcock (Franklin) an easy winner of the Schandain trophy despite his loss of 17 points.

The other penalties imposed were: W. G. Wetmore (Krit), one point; Emil Hokanson (Buick), nine points; J. Nicolozzo (Buick), 55 points; Harry Johnson (Buick), 104 points; A. J. March (Reo), four points; H. N. Westwood (Imperial), six points; George Browne (National), 10 points; J. Diener (Ford), one point; John Kemp (Overland), eight points; Dominick Nicolozzo (Franklin), 116 points; J. D. Rockstead (Warren-Detroit), 14 points; C. H. Delafield (Regal), 50 points.

HOW MINNESOTANS ARE GOING TO HELENA

Nine Days' Reliability Tour That Looms Large—Unusual Doings in a Region Not Famed as Touring Ground—Special Train and a Railroad President Play Conspicuous Parts.



MINNESOTA STATE ASSOCIATION TOURISTS DRAWN UP AT THE ST. CLOUD DEPOT

Minneapolis, July 20.—With the Glidden tour "on the shelf" the third annual reliability tour of the Minnesota State Automobile Association, which left here this morning should come pretty close to being "the" reliability contest of the year 1911.

It is a third grade tour, or rather a tour of the third grade, which, however, is no reflection on the contest and merely means that there will be no technical tests or examinations when the destination is reached. The destination is Helena, Mont., 1,288.5 miles distant.

Being a contest of the third grade only road performance will count in the final result, and, believe us, there is a lot of road between Minneapolis and Helena. It is of all sizes, shapes, depths and conditions. Mighty little of it is of the boulevard variety, and this Minnesota tour is not exactly a tour for tenderfeet.

When it started this morning a gentle rain was falling, but it served to dampen few spirits, if any. Nineteen actual contenders received the word. There also was a string of non-contestants who will trail behind, or in front, if they are fast enough to stay in front.

The nineteen contestants are as follows:

1. O. W. Close.....Maxwell.
2. John Fawkes.....Marmon.
3. Philip Wiseman.....Amplex.
4. O. A. Palmund.....Halladay.
5. C. L. Bonwell.....Kissel.
6. Chris. Rice.....Kissel.
7. J. Sackow.....Pierce-Arrow.
8. E. B. Stimson.....Hupmobile.

9. A. N. Smith.....Aboott-Detroit.
10. J. H. Prior.....Stoddard-Dayton...
11. M. J. Armstrong.....Colby.
12. B. W. Scott.....Flanders.
13. F. A. Witt.....Flanders.
14. George Herron.....Flanders.
15. J. E. Dougherty.....Krit.
16. A. L. McNurlen.....Petrel.
17. B. T. Hoyt.....Cole Forty.
18. A. J. Rose.....Cole Thirty.
19. W. Stork.....Packard.

The itinerary of the tour, which by the way will last nine days, is as follows:

	Miles.
July 20—Minneapolis to Alexander, Minn.	140
July 21—Alexander to Fargo, N. D.	123.8
July 22—Fargo to Devil's Lake, N. D.	194.6
July 23—Sunday at Devil's Lake.	
July 24—Devil's Lake to Berthold, N. D.	159.4
July 25—Berthold to Culberson, Mont.	167.1
July 26—Culberson to Malta, Mont.	183
July 27—Malta to Great Falls, Mont.	210.6
July 28—Great Falls to Helena, Mont.	110

To tell the whole truth, this automobile tour would not be quite so much of a tour if it were not for the Great Northern Railroad. The route lies along the line of that railway, and Louis W. Hill, president of the Great Northern, almost might be styled the patron saint of the tour. He interested himself in it at its very inception, and his interest still is with it, as in fact is Mr. Hill himself; and before or behind us is one of his most luxurious trains, without which food and lodging would be of a rather doubtful character. The road to Helena is not very numerously marked by

large or palatial hotels. The Great Northern train will supply the deficiency. It comprises twelve cars, two of them diners, one a garage car and seven sleepers. The two other cars attached to the train are President Hill's own private car and a private conveyance of John Ringling, the circus man. Messrs. Hill and Ringling also have automobiles at their service and will take to the road when in the mood. But the train will meet us morning, noon and night, and we will sleep and eat aboard it each day and night.

Reuben Warner, Jr., President of the Minnesota State Automobile Association also is a participant and contestant. His is a Pierce-Arrow car, but Dr. Charles E. Dutton, the referee and official representative of the A. A. A., has ruled that the Pierce-Arrow Co., having failed to secure a stock car certificate for its product, the Pierce-Arrow cannot be recognized as a stock car, and therefore is ineligible; the same applies to the Kissel car, but Mr. Warner has let it be known that if either the Pierce or the Kissel finish with scores that entitle them to the awards in their classes the prizes will be delivered, certificate or no certificate; which suggests that the A. A. A. may be visited by something of a squall from this section of the country.

When the referee announced his decision one Pierce-Arrow and the press car were withdrawn, and O. A. Brictson, the

Brookings (S. D.), tire tread manufacturer, who also had entered a Pierce-Arrow immediately offered to send his family home and in their place convey the press men to Helena. As the press men had to go somehow, Mr. Britson's offer was a welcome one, and did not lack quick acceptance.

Alexandria, Minn., July 20.—A slight rainfall, which began just as the tour was ready to start from the club house of the Minneapolis Automobile Club, served to lay the dust and to make the roads smooth and hard for the first day's travel. Partly because of this rain, and the generally good construction of the roads in central Minnesota, the sixty miles to the noon control at St. Cloud were covered without any difficulty and the remaining eighty miles of the afternoon were reeled off with barely a puncture.

At Sauk Center, 112 miles from the start, a "temporary control" was ordered because the people of the town gave the motorists a great reception and entertainment, and it seemed a shame to let them waste their enthusiasm on some one else, just because their home town had been slighted when "controls" were established. On arrival at Sauk Center the Stoddard-Dayton entry reported a blow-out repaired in seventeen minutes; this was the only trouble encountered until the cars rolled into the town, when one of the cars used by the reception committee backed into the Flanders No. 14, bending the latter's lamps and pushing it against another local machine, which "gored" the Flanders in the back.

One of the humorous incidents of the tour was the surprise of the various delegations of citizens from the regular and "special" controls, when they came out to escort the caravan of contestants. They endeavored to fall in line and "to follow the crowd." They followed it all right, but at a respectful distance; for it seemed that their ideas and those belonging to the "tour" varied greatly in regard to what speed was required to make the run. On several occasions offers from local motorists to "guide" or "pilot" the tourists into town had to be refused for the simple reason that their cars could not maintain the pace.

Fargo, N. D., July 21.—The first penalty was incurred to-day. The Krit car was forced off the road in a bad spot and fractured a steering arm. This was repaired in six minutes, netting a loss of only six points. Rumors of other penalties are not confirmed by preliminary examination of observers' notes.

A Packard runabout broke two leaves of a spring, but it is a non-contesting machine with which the owner is fooling the people by announcing on a flamboyant banner that it is a "New York-to-Seattle" car. Tomorrow he will have another banner. To the Westerner the transcontinental trip is a

common one, so much so that the 1912 tour will with little doubt be from the Twin Cities to the Pacific coast. The Westerners appreciate the humor of the banner's inscription.

Only a few tire punctures have been reported, as the roads are as yet free from small stones and no one has yet sprinkled the roads with nails. The Corbin car replaced a blown out tire handily; the Stoddard-Dayton one in sixteen minutes; the No. 14 Flanders in equally good time, and its second record arrival at the noon control one hour and twenty-three minutes ahead of schedule.

Hills, prairie trail roads, sand, newly-worked roads, and an occasional lost route were the difficulties of to-day. Some of the hills were S's with sand at the bottom, and others were easily coasted because of their smoothness. The unworked prairie road with vegetation growing close to the track, taking up excess moisture, has to date provided the best going, indorsing the estimate of drivers in former northwestern tours that if natural roads are left alone, or only King-dragged after rains and allowed to dry, they are the best touring tracks.

The state touring book, prepared by the secretary, C. S. Harrington, has proved exact to date. The only time the trail was really lost was after a slight difficulty with a farmer. His horses were frightened by the siren on the pilot car. They shied and the hay wagon turned over. The farmer is supposed to have changed the confetti to another road. Notwithstanding other directions indicated by the road book, the tourists, many of them, followed the confetti and had to come back after a three-mile detour. This is the only instance to date of discourtesy on the part of a farmer, or any other citizen of Minnesota.

Pilot Harrington took chances to-day and used up a can of spare water for the radiator putting out a prairie fire. A wind match dropped from some one's automobile started the grass burning and it took quick work and the waste of the water to extinguish the rapidly spreading blaze.

Served at each plate at dinner each night is a bottle containing a mystery. The label is as unique as the inscription on the cigars, which is "Spark Plugs." It reads:

"Whizzerino.

'02 P. D. Q.

Denatured Gasolene

Greatest Power Producer Ever Discovered.

A combination of alcohol, gastronomic gasolene and benzene sulphate. Suitable for anybody's transmission. Dilute with water if speedometer shows more than 3 pints per minute. Made in the

Twin City laboratories of Cotton-Dard Harmless Chemical Company. For punctures use Warner's Safe Cure."

Cotton-Dard undoubtedly refers to Referee Dutton and Chief Observer Card. Warner is the state association president, and a contestant.

Last bulletin for night is that the John

Kingling car, which has failed to arrive, a non-contestant Pierce-Arrow, was overturned at Ashby, thirty-one miles from Alexandria. Its top was torn off and windshield broken.

Devil's Lake, N. D., June 22.—At the end of an exciting run of 194.6 miles, the first real tour that the Minnesota State Automobile Association ever had, the motorists, at the finish of the third stage of the tour, are parked beside the hotel train on the shore of the big lake here.

Rain which soaked the gumbo soil for part of the distance called for tire chains, and slushing and slipping the machines traveled for fifty miles in the face of a driving downpour.

The chief happening of the day was the overturning of a Packard runabout on a fifteen foot embankment. Unwise driving by two non-contestants who are not really in the tour caused the trouble. At a point where the road turned sharply around a swale, marked by a red flag, the two men tried to pass the pacemaker car where there was hardly room for one automobile. The right wheels hung a moment over the grass embankment and then slowly turned completely over. The owner, Andrew Berkey, of St. Paul, jumped and got clear of the machine. J. W. Henderson, the chauffeur, slipped as he jumped, went over with the car and then crawled out of harm's way.

After leaving the morning control at Fargo the tourists ran six miles in North Dakota and then resumed the Minnesota trail again until Grand Forks was reached for the noon stop. The roads in the upper Minnesota counties surprised the tourists by their good and well worked condition. In the afternoon the judges began their work of preparing to award two prizes for good roads in North Dakota. One prize is for any county traversed and the other for three counties west of Devil's Lake.

Leaving Grand Forks at noon, the tourists made a control at a mile square aviation field, where a local aviator made his tenth flight in a homemade air ship, in a manner that was pronounced more than ordinary by members of the tour who had seen the most famous of the world's bird men. The contesting cars lined up on a high road and were deserted by their occupants, who sought the aviation field, with permission of the referee, who announced a special control.

Entering Crookston, a large city, the tourists were stopped in the morning by the citizens and given a full luncheon. The hospitality and its form of expression changes as the tour goes north and west, and it has become of a demanding type that insists on emergency controls. Just after luncheon at Larrimore, the people had prepared a big exhibit of flowers and products of the country's big farms. Lemonade was served, but the rain began,

ruined the event and caused an immediate start for the night control. This rain soon transformed the gumbo into slimy stuff that called for chains and careful driving. Stalled engines in non-contesting cars were the chief results of the rain, with most of the entrants near the danger point as to expiration of running time.

Minor accidents marred the day to an extent. Mrs. L. H. Fawkes in the Marmon

reported late to-night, to be liable to penalty when the chief observer inspects the road books, because of damage to his gear shifting mechanism. As yet there are no other penalties, the damage being thus far to non-contesting machines. C. P. Merwin, driver of the pacemaker Corbin, picked up a half hinge to-day in his tire, made by a firm for which he worked eight years. He shook hands with the relic.

spending the evening in various ways, having been able during the afternoon to catch up with Father Morpheus, snatching quantities of sleep from him when he wasn't looking. Their chief occupation, aside from sleeping consisted in reading the first number of "The Carburetter," the fourteen-sheet newspaper printed aboard the "Speedometer," as the hotel train has been dubbed.

Ralph Haynes, son of the entrant of the Cole car, and himself a passenger in the car, received a wire from his father ordering the withdrawal of the car on account of published reports that the steering arm is broken. His answer was a refusal to obey na's orders, as but a small piece was broken from the shift lever and already had safely driven it for two days. He asserted that the damage could be repaired in fifteen minutes. No penalty has been fixed as yet, depending upon the time necessary to make the repair. The Colby entry probably will be penalized for adjusting a broken spring.

Berthold, N. D., July 24.—As expected, the Colby was debited with two points, the Krit also drawing a penalty of 50 points and the Petrel one of three points. The long stretches of sand encountered, combined with the foothills near Devil's Lake, played havoc with the perfect scores which had been obtained heretofore. The Maxwell No. 1 received 121 points for time oc-



CARS PARKED AT ALEXANDRIA, THE FIRST NIGHT CONTROL

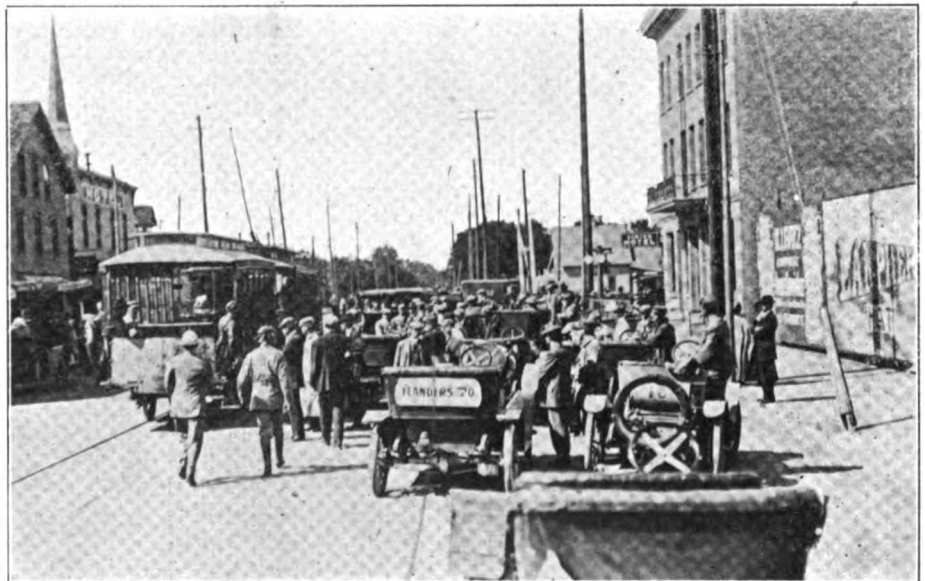
entry was removed to the train at Grand Forks with a sprained limb, and John Ringling was similarly afflicted. In the afternoon stretch the pilot and pacemaking cars had a long race with the special automobile train, the observation end crowded with an enthusiastic gallery of people who had chosen to ride in the train for the day. The pace was kept up for thirty-five minutes, without a break.

C. E. Van Duzee, in a non-competing Chalmers 40, came into port to-night with seven leaves broken in the right front spring. He has made up his mind to continue the tour notwithstanding his original intention to drop out to-night.

Tourists now look forward to the change in scenery expected in the run through the state of Montana. The character of the country began to change to-day and is unfamiliar to Minnesota eyes. Indian reservations are to be visited and a belated Fourth of July event is to be given on one of the reservations for the tourists' benefit.

Louis W. Hill, president of the Great Northern road, a non-contestant driver of a Packard, already pronounces the tour the best managed he has ever witnessed. President Reuben Warner, Jr., of the state association, is equally warm in his description of the arrangements. The train feature is found to be excellent after two nights' trial as a lodging house, and much comfort is expected in the day's rest to-morrow.

Cole 30, No. 18, Ralph Haynes, driver, is



MINNESOTA MOTORISTS ARRIVING AT FARGO, N. D., THE SECOND NIGHT CONTROL

Sunday is to be spent at the Devil's Lake Chautauqua and in resting up for Monday's trip to Berthold, 159 miles. The start will be made at 7:30 a. m. One form of entertainment will be the publication of the first issue of "The Carburetter," which will be printed daily on the hotel train for the benefit of the tourists.

Devil's Lake, N. D., July 23.—To-night (Sunday) the cars are parked on the Northwest's noted salt lake, and the tourists are

occupied in repairing gasoline feed pipe, removing carburetter, cleaning nozzle and minor work. Amplex, No. 3, was penalized six points for minor troubles. Halladay, No. 4, was assessed 36 points for soldering gas tank; Petrel, No. 16, broke front springs and ten leaves on back spring, but was put in running condition in twelve minutes.

The heaviest penalization was meted out to the Cole, No. 18, which got 461 points for a whole basketful of trouble; it lost 180 points for driver's work in trying to re-

pair the gear shifting arrangement, which had become locked, and the car had been running on high gear for nearly two whole days; 240 points were chalked up against it for employing an extra man to help in the work, and 41 points for being late at control. Additional penalties will be marked against the Stoddard-Dayton for broken axle. J. H. Prior, who drove the car, took off the wheel, pulled out the axle, was pulled into the next stopping place by a blacksmith, and yet arrived early. He wanted to withdraw, but was prevailed upon to continue the tour. There was a baseball game here, which began at seven o'clock and continued until darkness fell.

Culbertson, Mont., July 25-6.—Gaining one hour at Williston, N. D., by changing from Central to Western time and crossing into Montana at Dondak, in sight of the tree tops of the Yellowstone Valley, the Minnesota tourists to-day traveled 167 miles from Berthold to Culbertson, Mont., both pioneer towns of early days.

When the train arrived at the night control, all got aboard for Popular, Mont., and rode for an hour to the Fort Peck Indian Reservation, where the Sioux gave an entertainment, designed for July Fourth, but postponed in honor of the tourists. This consisted of war dances, squaw dances and a sham battle in full war panoply. The train returned to the night control at Culbertson and the route of the motor cars will be back through Popular to-morrow to Glasgow for noon control and Malta for the night.

The run of 167 miles to-day was over varied country, including stone roads, sand and the finest prairie highway, good for high speed. Roads in North Dakota and Montana to-day appear equal to general run of motoring roads in Minnesota, Wisconsin and Iowa. Tires were given good tests by varying character of the tracks and by the hot sand, which causes blow outs. Numerous tire changes were made, especially across the beginning of the Bad Lands outcroppings, practically every car having to replace tires.

Krit car, No. 15, was towed into noon control with trouble in magneto. The Petrel reported at same point with third spring broken; two having been penalized yesterday.

The Indian doings and frontier dance at Popular took the time of the technical committee, which has not assessed all penalties for this, the fifth day of the run. Those so far announced are:

Haladay, cleaning carburetter, 8 points; Stoddard-Dayton, work on new spring clip, 15; Colby, intake manifold wrapped, 3; Cole, adjusted carburetter, 30; Amplex, adjusting carburetter and stalled motor, 14; Petrel, 83.

The weather to-day was dry and warm and the chief amusement on the road was chasing flickertail gophers and sliding down short dips into dry water gulches across the foot hills.

NINE NEW TYPES IN OVERLANDS

**A 30 Horsepower Touring Car the Feature
—Wide Ranges of Power and Price
in Other Patterns.**

Continuing its policy of building a line of remarkable scope the Willys-Overland Co., of Toledo, O., this week announced that its new line will comprise no less than nine new body styles built on chassis ranging in power from 25 to 45 horsepower, and in price from \$850 to \$2,000. The list will comprise runabouts, roadsters, small and large touring cars, torpedoes and coupes. Straight-line, closed-front bodies will prevail, while the neatly turned curves and finishing touches that have rendered the current models attractive to the eye will be retained with sundry improving modifications, the latter, indeed, amply serving to render the new models conspicuous as such. Clean running boards, concealed door latches and inside control levers will serve to render the different designs at once clean-cut in appearance and in fact.

What appears destined to occupy a most prominent position in the line is the new model 59, which is to be a 30 horsepower touring car, seating five passengers and selling at \$900. The specifications call for a large, roomy car of 105-inch wheel base equipped with a 4 x 4½-inch motor of four-cylinder, L-head construction, a three-speed selective change gear with central control, two ignition systems with one set of plugs, internal-external brakes and 32 x 3½-inch quick detachable tires. The motor has large sized valves, the valve springs being enclosed to suppress the noise and the push rods being lubricated. The clutch is of the reliable cone type and the change gear mechanism is mounted on F & S ball bearings. Semi-elliptical front springs and three-quarter elliptical rear, worm and segment steering gear and semi-float-axle are other of its features. The same chassis also will be equipped with a two-passenger torpedo roadster selling at \$900, and a coupe, the price of which will be \$1,250.

Among other models in the new line will be the 58-R, an \$850 two-passenger roadster equipped with a 25 horsepower 3¼ x 4½-inch motor, 32 x 3½-inch tires, Splittorf magneto, three oil and two gas lamps, generator and tools. Model 60-T, will be a \$1,200 touring car, built to carry five passengers and having a 4¼ x 4½ 35 horsepower motor, 110-inch wheel base, Remy magneto and the same equipment in other respects as the smaller car. The same sized motor likewise will be employed in the model 61-R, torpedo roadster, which otherwise will differ in having a 116-inch wheel base, Bosch magneto equipment and 34 x 4-inch tires. This latter chassis will be sold in addition as a four-passenger torpedo and also as a five-passenger touring

car, both with enclosed front, as a matter of course. All three of these models will sell for \$1,500. Model 61-C, the last named member of the newly announced series, will be a fashionable looking coupe, which will list at \$2,000.

New York's Cars Cost \$5 Per Day.

New York City's Board of Aldermen on Tuesday, 25th inst., listened with expressions of incredulity and dismay to the report of a special committee that had been appointed to investigate the use of city-owned automobiles by the city's servants. The committee reported that joy-riding still exists despite the sternly repressive measures which are reported to have been put forth to check the practice. During the year 1910, it was stated that no less than \$176,570 was expended for the maintenance and operation of 100 city cars, or \$5 a day each. The tentative budget for 1911 called for a sum total of \$107,215, there being 125 cars in use by officials at that time. The Aldermanic report shows that the cars averaged \$2.200 in cost to the city.

The project for enlarging the garage at present maintained under the end of the Brooklyn Bridge was brought to the surface again, as were the suggestions of tagging every car in city service, with signs bearing letters five inches high and the extreme measure of abandoning the present equipment and adopting rental contracts, as already has been done to some extent for emergency purposes. The horrified Aldermen referred the resolutions on the report to the committee on laws and legislation.

Carburetter Device to Assist Starting.

To ensure easy engine starting an English company, the Supplementary Carburetter Syndicate, of Birmingham, has brought out a special form of drip-feed mixer which is intended to be attached to the dash of the car. When about to start the air port of the regular carburetter is closed temporarily and the cocks leading from the supplementary device opened. Of these there are two, one opening directly from the reservoir, while the other is installed below a sort of open sight-feed drip cup. As the fuel drips from the upper opening into the cup air is carried along with it, the result being that a rich mixture is fed to the cylinders until the air-port is opened.

Here's the Compressed-Air Jack.

In adapting an air-starter to its car, the Adams Manufacturing Co., one of the older British builders, has extended its usefulness by including a compressed air lifting jack with the regular equipment. The small air compressor which is incorporated in the engine gives a continuous supply of air at 300 pounds per square inch pressure. This is used directly for turning over the motor and for inflating tires, while the use of the air jack considerably facilitates the making of replacements.

GRAND PRIX WAS EASY FOR HEMERY

Driving an Italian Car He Won French "Revival" in Hollow Style—Fatal Accident to Maurice Fournier.

Perhaps it was lucky for the Automobile Club de Sarthe, the promoter of the French Grand Prix, run over the Sarthe circuit on Sunday last, 23d inst., that no American cars took part in it, for, judging by the speed and endurance shown by the Marmon, National, Pope-Hartford, Alco, and other representative American productions, the Continental cars would have cut but a sorry figure. For in this year's famous classic the winner's speed averaged barely 57 miles per hour, which compared with the velocity attained at the Vanderbilt, American Grand Prize and Fairmount Park road races is slow traveling; and this despite the acknowledged perfection of the French roads. Victor Hemery, one of the foremost drivers of the world, romped home a winner in his 120 horsepower Fiat in 7 hours and 6 minutes, and was the only entrant to finish the 405 miles within the allotted time.

On the Sunday night preceding the race a deplorable accident caused the withdrawal of the Ford, the only American entry. In going over the course, Depasse, the driver, essayed to take one of the turns at a 75-miles-an-hour clip, but his car skidded and crashed full speed into a telegraph pole, catapulting driver and mechanic through the air with terrific force. Depasse escaped with a broken rib and contusions, but his mechanic, H. Esnault, was killed instantly. The car was wrecked beyond possibility of repair. The withdrawal of the Ford entry narrowed the international field down to the representatives of France, Germany, Italy and Belgium.

An innovation was made in marking the cars so as to give the spectators immediate knowledge of the nationality of any passing contestant. French cars were painted blue, German cars white, Italian green and Belgian yellow. Fourteen cars lined up for the start:

Car.	Nationality.	Driver.
Rol.-Pilain	French	Rigal
Rol.-Pilain	French	Gabriel
Corre	French	Fournier
Cote	French	Ollier
Cote	French	Leduc
Gregoire	French	Porporato
Excelsior	Belgian	Riviere
Excelsior	Belgian	Enlow
Porthos	German	Antony
Koechlin	German	
Mathis	German	Mathis
Fiat	Italian	Hemery
Bugatti	Italian	
Bugatti	Italian	Friedrich

The Fiat which Hemery drove to victory was the same machine which took part in the Savannah Grand Prize race of last year, and it proved so far superior to the rest of

the entrants that its driver did not have to push it to its limit to make a runaway race of it. French papers in commenting upon the eleventh hour entry of the big Fiat, openly express the belief that the Italian makers shrewdly waited until the last moment, when assured that no Marmon "Wasp," or Blitzen Benz, or Alco was to be included in the field. Frenchmen maintain that the Fiat was out to win the "resurrected" Grand Prix, and if there was to be any doubt about it, it would have stayed out rather than suffer defeat.

The race itself was full of thrills, even though it early became evident that there was nothing to it but the Fiat—as far as the winner was concerned. But the battle for second place waged hot and furious for several hours. After more than half of the distance had been covered, the Fiat pulled out for adjustment to its machinery, which kept it out so long that Maurice Fournier, who was driving a car of his own design and manufacture, which he called "Corre de Course," managed to pull up on even terms. As soon as Hemery came back on the track, however, he gave the Fiat its head and fairly flew after the ambitious Fournier. The latter in trying to keep his slight advantage subjected his car to too great a strain, and shortly after the Italian had managed to pass in a cloud of dust, the axle of Fournier's mount collapsed and the driver was crushed to death beneath it. The mechanic was hurled a hundred feet and seriously injured. Hemery never knew of the fatal accident until he stopped for a tire change on the next lap.

The tropical heat which obtained during the race was extremely "hard" on tires and an unusual number of stops had to be made on this account. The winner's car was shod with Michelins.

Nebraska Jury Gives Woman One Cent.

One cent damages was the sum awarded by a jury to Mrs. Anna Hoerr, of Wymore, Neb., against the Wheaton Automobile Co., for the alleged retention of an automobile belonging to the plaintiff in the garage of the defendant. Included in the suit was the sheriff of the county. The case was a most unusual one. Mrs. Hoerr claimed that the automobile was seized by the sheriff, although it was owned by her, and that the sheriff told her she would be deprived of its use, because her husband, who had been convicted of a robbery, had placed it at the disposal of bank robbers with whom he was acquainted. Someone recognized the robbers' car as that owned by Mrs. Hoerr and temporary confiscation by the county authorities followed. She therefore considered herself damaged to the extent of \$500 by being denied its use for the time during which her husband was in jail awaiting trial on the complicity charge. When he was sentenced to the penitentiary the car was turned over to her, but she was not satisfied and instituted a law suit for damages.

MUD FAILS TO AFFECT 14 SCORES

Only Two Heavy Penalizations Inflicted in Ohio Contest and but Three Failures—One Rather Amusing Arrest.

Fourteen of the thirty-three starters in the Wheeling-Columbus-Cleveland three days' reliability run conducted last week by the Cleveland News, completed the 533 miles with perfect scores. The contest, which ended Wednesday night, 19th inst., was the most successful ever held in Ohio and surpassed in every respect a similar event held by the same publication last year.

In the entire route there was not a single stretch of level road that measured more than a half a mile in length. The greater part was up one hill and down another. These hills are broken at short distances by water breakers that rise a foot above the road level. This makes an excellent test for springs and adjustments but does not contribute to easy going. The famous St. Clair's Hill, just outside of Wheeling, winds up the side of a mountain for a distance of a mile and a half, and was the longest climb of the route.

As the Motor World stated last week, the first day of the run, due to a twenty-hour downpour of rain, was largely a mud plug. As the result three contestants retired at Wheeling, W. Va. These were C. H. Tyler, driving a Columbia, who broke a spring; B. Sampson (Krit), who suffered more than one man's share of tire trouble, and J. T. Ruffel (Norwalk), who stripped a gear.

There were only two accidents on the whole run and they were not serious. T. S. Hammer, who drove a Peerless roadster, turned his car into a ditch near Sullivan, Ohio, in order to avoid running into a hay wagon that had turned the wrong way as Hammer attempted to pass. As the car struck the ditch, the steering wheel hit Hammer's arm and tore three ligaments. A local physician attended Hammer's injuries. As a result of the shock to the car, adjustments had to be made to the steering gear, ignition and fan, for which a penalty of 15 points was imposed.

The other mishap occurred when B. Sampson in a Brush car ran over "Tony" Grimes, the A. A. A. representative in Zanesville. Grimes slipped in the street and before the car could be stopped it ran over his chest. With the exception of a bruise on the arm Grimes was uninjured. No penalty was imposed for the accident, but Sampson had to do a little work on the spark plugs and lost two points.

The most excitement befell D. W. Iseminger, driving a Velie and Harry Zautner, the observer, who were arrested in Mansfield, Ohio, following a short altercation with two policemen. The law officers misunderstood the motorists when they en-

deavored to explain why it was necessary to stand in a certain place until they could be checked in, but both men were immediately released by the Director of Public Safety as soon as the situation was explained. Iseminger made the trip with a perfect score but his partner, Harry L. Vance, had to replace a part in the Velie car he drove and lost two points.

Those finishing and their scores, which were announced on Saturday last, were as follows:

Perfect—Dan W. Iseminger, Velie; C. G. Bledsdale, Maxwell; Fred Krum, Oakland; Harry Kortz, Firestone-Columbus; F. B. Smith, Buick; G. P. Sperry, Regal; J. H. Greenwald, Marmon; J. Bauer, Oakland; F. Metzger, Everitt; F. Krif, Krit; J. Adrian, Lion; J. P. Norwalk, Norwalk; F. E. Van Patten, Ford; A. G. Bredbeck, Reo.

Lost two points—Harry L. Vance (Velie), replacing crank; B. Sampson (Brush), work on spark plug.

Lost three points—E. C. Lucas (Mitchell), water out of control; J. W. Robertson (Maxwell), repairing wire on cut-out.

Lost six points—C. D. Paxon (Jackson), cleaning spark plug and tightening clutch.

Lost 12 points—M. Keiser (Bergdoll), repairing springs; V. R. Hall (Cartercar), engine stopped twelve minutes.

Lost 15 points—T. S. Hammer (Peerless), work on steering gear, ignition and fan.

Lost 17 points—L. B. Moore (Regal), adjusting carburetter and taking water.

Lost 120 points—J. F. Moore (Ford), broken fan blade and radiator leak.

Lost 663 points—H. W. Orendorf (De Tamble), work on gears and transmission.

Non-contestants who made the trip were: Ira Fouche (Garford); E. B. Finch (Chalmers); Andy Auble (Oldsmobile); Mrs. Fred Wood (Oldsmobile), and Charles Ross (Liberty-Brush).

Investigating Illinois's "Justice Mills."

Closely following the disclosures in the case of the "justice mill" said to have been operated by Fred Beisswanger, a justice of the peace at Niles, near Chicago, announcement has been made by the state's attorney of Illinois that a rigid investigation is under way, with a view of determining just what becomes of the great number of fines collected by the various lower courts and magistrates, a certain percentage of which is supposed to be turned over to the good roads fund. It is claimed that there exists a great discrepancy in the amounts turned over, and the fines known to have been collected from motorists.

For several weeks the Chicago Automobile Club quietly has been collecting evidence of all fines inflicted upon its members and a number of discrepancies already have been discovered which put several justices under suspicion. The evidence has been turned over to Judge C. A. McDonald, who passed it along to the state's attorney.

VACATION WITH GUNS AND WIRELESS

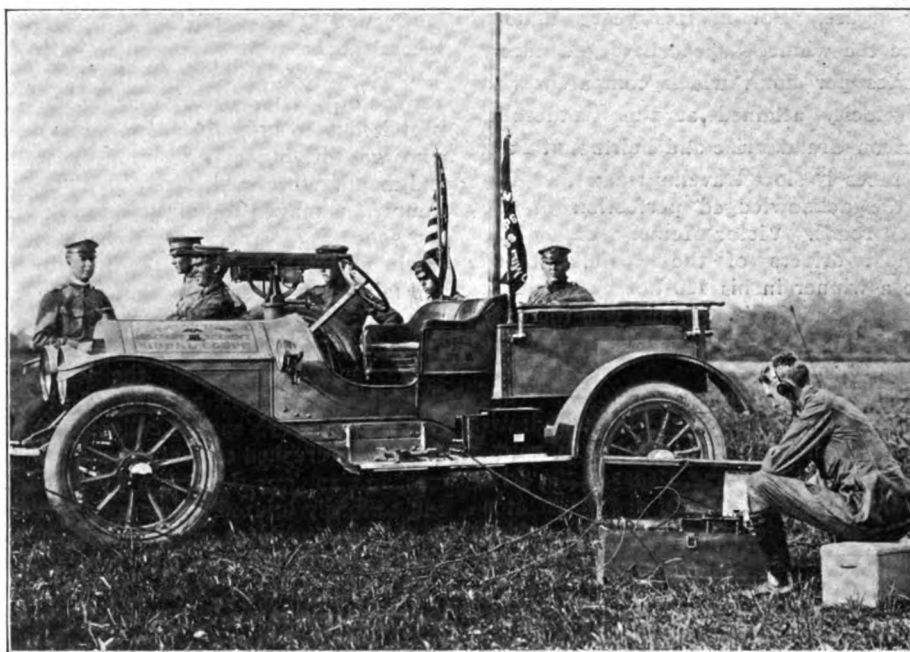
Illinois Cadets Bring Their Motoring Artillery to New York—Enlarged Features of an Annual Outing.

Those industrious cadets of the Northwestern Military Academy, of Evanston, Ill., who every year go on a long automobile "vacation," during which they test various novelties in the line of offensive and defensive weapons or tactics, on Tuesday last, 25th inst., rolled into New York, equipped from top to bottom with all the

more, Philadelphia, New York, West Point, Albany, Buffalo, and back along the lake shore to Chicago. At Washington they were asked to demonstrate their ability as wireless operators and airship destroyers, and later on they will give a sample of their proficiency at the maneuvers of the Army Signal Corps at Omaha, Neb. Major R. P. Davidson is in command, with Captain Broome, of the Illinois National Guard, and Lieutenant F. L. Beals, of the United States Army, assistant officers.

Bar Harbor Now Wants the Motorists.

"We cut off our noses to spite our faces"—is the candid admission made by the peo-



NORTHWESTERN MILITARY ACADEMY AUTOMOBILE FIELD WIRELESS OUTFIT

paraphernalia for fighting aeroplanes and balloons, with wireless apparatus carried on collapsible steel masts, and painted a business-like "battleship gray" which made them look real formidable. They numbered three officers and thirteen cadets, which total divided into four cars, allowed four passengers to each car.

No automobile manufacturer ever dreamed of putting so much "equipment" into his touring cars as the soldier boys have managed to squeeze into them; and that apparently without overloading the cars. Each of the fighting units carried a dangerous-looking Colt automatic gun, capable of being directed to almost any point of the sky; ammunition to go through a hot engagement, and finally a collapsible steel mast for the wireless apparatus, which was fixed up immediately behind the driver's seat. Added to this war outfit there was the regular baggage of the sixteen participants, and it will be easily seen that the cars had to carry a considerable load.

The cadets left Chicago on July 6, going through Indiana, Ohio, West Virginia, Washington (D. C.), to Annapolis, Balti-

ple of Bar Harbor, who two years ago could not heap enough abuse on the automobile, and finally succeeded in barring their roads to motorists. Thereby they not only excluded many transient tourists but curtailed the activities of numerous local cottagers who own cars. Not only has the number of "summer boarders" fallen off alarmingly in the Bar Harbor district, but even the well-to-do who were unlucky enough to have summer homes in the hostile territory gave it a wide berth, with the result that merchants of all trades are setting up a tremendous howl, because the income from the regular winter trade is not sufficient to make their stores pay them a living income. The tourist and the summer boarder are needed in Bar Harbor, and because the hostile automobile legislation deprives them of the use of the motor car they go somewhere else. Reports from the Maine coast state that the same people who were so violently opposed to automobiles two years ago, now are eager to admit them, and that a bill will be introduced in the next legislature to abolish the "exclusion" policy.

AMATEURS DOWN THE TRADE TEAM

Chicago Contest in Which "Pures" and "Pros" Mingled and Which "Pures" Won—Sports on Michigan Soil.

In Chicago, where interesting team competitions have become popular during the past year, the Chicago Motor Club promoted a contest of the sort between amateur and trade teams composed of club members, although the rules of the A. A. A. forbid competition between amateurs and professionals—and all tradesmen are pros according to the A. A. A.'s lovely rule—even David Beecroft, a member of the A. A. A. contest board, violated the rule in the contest, which occurred July 20-21. It was a reliability affair, with St. Joseph, Mich., 105 miles distant, as the destination. The return route covered 117 miles and the amateurs won by a score of 221 to 287.876 penalizations.

The rules imposed penalties for work done and being late at controls. The first day's trip was remarkable for the slowing made by the amateurs, as they lost only one point—C. K. Anderson, in a Mitchell, killed his motor—while the trade team was assessed 263 points—Charles Van Sicklen, William Roesch, W. D. Ferguson and Harry Cooper were penalized for motor stops, Webb Jay for gasoline trouble, Tracy Holmes broke a crank shaft and Harry Watts made steering gear adjustments. Holmes could not replace the shaft and withdrew.

On the return more perfect scores were eliminated, the amateurs suffering the most. C. G. Sinsabaugh, Abbott-Detroit, had ignition trouble and failed to get away from St. Joseph, for which he lost 150 points; H. H. Van Sicklen, Sr., Apperson, was penalized one point on account of driving chain trouble; Claude Anderson, Mitchell, was assessed 67 points for work done, while G. W. Gaidzik, Premier, and T. F. Laramie, National, each lost one point for motor stops. C. F. Van Sicklen of the trade team changed a spark plug in his Ford and lost one point; C. E. Gregory, Chalmers, had a motor stop and broke his perfect score; H. C. Watts did work and was arrested for scorching. He lost 65 points. Tracy Holmes, Corbin, withdrew.

The trade team had sixteen drivers and the amateurs fourteen, therefore the dealers were only penalized 14/16 of a point instead of a full point. This drew a fine finish because it looked for a time that Claude Anderson would have to withdraw his Empire, thereby crippling the amateurs. Eight of each team finished with perfect scores, as follows:

Amateur Team.

Driver and Car.	Penalties, Points.
David Beecroft, Abbott-Detroit.....	0

C. G. Haywood, Buick.....	0
George Knab, Pierce-Arrow.....	0
J. H. Smith, Halladay.....	0
J. G. De Long, Halladay.....	0
J. C. Kinsley, Marmon.....	0
F. W. Jencks, Welch.....	0
A. C. Barthold, Cadillac.....	0
N. H. Van Sicklen, Sr., Apperson...	1
C. K. Anderson, Mitchell.....	1
G. W. Gaidzik, Premier.....	1
T. F. Laramie, National.....	1
Claude Anderson, Empire.....	67
C. G. Sinsabaugh, Abbott-Detroit...	150
Total	221

Trade Team

Thomas J. Hay, Ford.....	0
J. P. Frisby, Staver-Chicago.....	0
Gaylord Warner, Thomas.....	0
E. T. Wells, Imperial.....	0
W. E. Stalneck, Premier.....	0
S. Brakestone, Special.....	0
A. M. Robbins, Abbott-Detroit.....	0
E. J. Malloy, Mora.....	0
C. E. Gregory, Charlems.....	1
William Roesch, Pierce-Arrow.....	1
C. F. Van Sicklen, Ford.....	2
W. D. Foreman, Oldsmobile.....	2
H. W. Cooper, Charlems.....	3
H. C. Watts, Alco.....	65
Webb Jay, Rambler.....	105
Tracy Holmes, Corbin.....	150
Total	329
Fractional penalization, 287.876 points.	

In the field sports at St. Joseph the Van Sicklen ball team defeated the Woods nine by a score of 8 to 2. Harry Watts won the 100-yard sprint and George Gaidzik, former national fancy diving champion, a member of the amateur team, carried off the honors in the water events.

York's Unsanctioned Meet Draws Fire.

All those who had to do with the unsanctioned racemeet at the County Fair Grounds track, York, Pa., on July 4, have been disciplined by the American Automobile Association. The track itself has been disqualified and rendered ineligible, as have been four drivers, H. Heiges, P. P. Anderson, C. Lambright and Thomas Wilkie. The promoter, the York Automobile Association, and the official starter, H. R. Hardesty, have been disqualified and suspended until January 1, 1912, together with the following entrants: York Garage & Supply Co., J. P. Oden Automobile Co., W. P. Norris, J. W. Richley and J. Y. Burgard, and the drivers of their cars, N. F. Hench, W. F. Grove, E. T. Gilliard, N. R. Gilliard, C. Summers, R. Little, Bob Yeager and J. P. Oden.

Two Clubs Elect Officers.

The Automobile Club of Corydon is the style of an organization formed last week in Corydon, Ind. The officers are: President, W. H. Keller; vice-president, W. E. Cook; secretary and treasurer, W. Bulleit.

The Boonville Automobile Club, of Boonville, N. Y., has elected the following officers for the ensuing year: President, B. A. Capron; vice-president, J. M. Hobart; secretary, C. R. Sperry; treasurer, Rev. F. C. S. Smith.

GERMANS EXTENDED THE GLAD HAND

Remarkable Enthusiasm Aroused by the Prince Henry Sportsmen's Tour—Scores Spoiled and Interesting Happenings.

That the Prince Henry Tour of 1911 was not quite the pleasure trip which English motorists had been led to expect, but comprised a good deal of hard driving over steep hills and sandy roads, is the gist of mail reports received here during the past few days. The first day of the tour, July 5, particularly was replete with surprises of this kind, as four hours after the start from Homburg some of the cars were in trouble. One of the big English cars burst its radiator, and while temporary repairs at once were made, it lost a good many points for taking on water, until proper repairs were made in Southampton, with a commensurate loss of marks. Another English car broke an exhaust valve, while, to offset these British troubles a German car, owned and driven by De la Croix, ran into a wagon and had to be withdrawn, causing a daily loss of 50 marks to the Kaiserlicher Automobile Club.

Thirty-eight German and thirty English cars reached the top of the Grosser Feldberg, a mountain rising 2,200 feet above the surrounding country, and here the visitors were given their first taste of German hospitality. The whole populace was out. The roadsides were fairly lined with humanity, and the cheering and flag waving were almost continuous. Flags flew from nearly every house, and bouquets of flowers were showered into the cars, sometimes striking the occupants in the face and inflicting painful scratches.

"It was absolutely inspiring," writes one of the Englishmen on the tour. "It was a nation's welcome; heartfelt, generous and spontaneous. One had only to look at the beaming excited faces, the tense forms and the sudden outshoot of the right arm upward in a sharp salute, to realize that the vim and energy of this great and mighty nation was finding expression in one great and spontaneous welcome. The tour has proved an eye-opener to us Englishmen. Most of my preconceived ideas about Germany and the Germans have been wholly changed. I imagined in my ignorance that they were a phlegmatic people, hostile to the British and heavy and uninteresting in appearance. Instead we received a welcome that was beyond description. . . ." And not the least interesting part of the trip was to see Prince Henry perform his mechanical duties, ply monkey wrenches, etc., to conform with the rules of the contest, which barred tradesmen and professional chauffeurs from even handling the cars. It was the strictest amateur sportsmen's contest ever held, and no manufac-

turer or person connected with the trade will be permitted to use the contest as an advertising dodge.

On the second day, July 6, accidents were few and far between; the only serious one happening to a German car which was traveling over a bad stretch of road at a speed of at least fifty miles an hour. It ran into a farm wagon and broke its axle. A French car, driven by Capt. Kennedy as a member of the British team, broke its camshaft, because the central pin had been forgotten at the last control; it lost one day, equal to 50 marks. Mr. Michael Orde, who drove Sir Griffith's car, had trouble with seized pistons and lost 3 marks. Oliver H. Valpy had a broken spark plug, and G. F. Sharp lost two hours on account of a broken magneto chain. A. E. Berriman was run into by a non-competing car and had his gasoline tank torn off the foot-board and his oil tank damaged; he did not lose any marks, as it was through no fault of his that the accident occurred.

The last day on German territory, July 7, was enlivened by an unusual and ludicrous accident. E. Manville, who drove the Duke of Connaught's limousine, was overcome by the heat and fell sound asleep—with the natural result that at the next turn his heavy car ran off the road, cut down a small tree and brought up in a cornfield on the other side of a ditch. Neither car nor driver were injured, and not even the engine was stopped, so that no loss in points was marked against the Duke.

At the port of Bremerhaven some of the cars lost the greater part of their oil supply in an odd manner. When the big ship's cranes started to lift the cars to the deck of the steamer, each car tilted forward at an angle of about forty-five degrees, which caused the oil to run out of the reservoirs. But both the loading of the 68 cars at Bremerhaven and the unloading at Southampton were accomplished without a hitch or accident.

The first day on English soil, July 10, was replete with humorous incidents. Arrived at the Randolph Hotel, Oxford, at noon, the hotel people were taken unprepared and there were no waiters ready to serve the tourists. As a result the other guests of the hotel were treated to the unusual sight of an imperial prince, brother of the Kaiser, running along the corridor with a plate of soup in one hand and half a dozen sandwiches in the other. It was a case of "first come, first grab," and the prince was in no way backward about grabbing.

Joy riding of the Central Park kind was the effort of the second day on English territory, July 11, on the stretch from Leamington to Harrogate. Nothing of an exciting or unusual nature occurred on this part of the route, tire trouble being the most serious accident recorded. The roads were smooth, well shaded with trees and the reception accorded the tourists was the most cordial possible.

Up to this time the English appeared to have less points charged against them than the German, and the "friendly competition" waxed keener as the days passed; for although the actual number of points charged against the Germans was greater, the percent system of calculation still showed a slight advantage on the German side. The 450 points marked against the K. A. C. on account of the withdrawal of the De la Croix entry, after the accident on the first day, was the greatest debit on the German side of the record book, and the Englishmen appeared confident that it would prove the deciding factor in the awarding of the prizes. Besides the cup donated by Prince Henry, there are cups given by King Edward, the Kaiser and Queen Mary, of England.

Changing Rule of Road in Germany.

Claiming that the present custom of passing vehicles traveling in the same direction on the left side, while keeping to the right side of the road in the case of vehicles approaching in the opposite direction, is puzzling and objectionable, the governments of several of the central German states have under consideration a bill, requiring that every fast-moving vehicle on the public roads or streets must keep to the right under any and all circumstances; that a slow moving vehicle shall be compelled to keep as near to the left side of the road as it is possible for it to go, provided no vehicle is approaching in the opposite direction, and that automobiles, in particular, always shall travel along the right hand side of the road, when going at speed. As these regulations are opposed to present custom, many accidents are likely to happen, until the farmers and peasants of the outlying districts learn of the new rules and follow them. The rules have been passed upon favorably by the respective committees on ways and roads, and there is little doubt of their being enacted into law.

Lewis Strang Meets Death on Road.

After having looked death in the eye more than once while his car traveled at a mile-a-minute pace, or even faster, it was Lewis Strang's fate to be killed in an easy-going endurance contest, in an ordinary touring car filled with passengers, while going along a country road at not more than about 25 miles an hour. The accident happened on Thursday last, 20th inst., during the Wisconsin State Automobile Association's endurance run, on a rough piece of road a mile east of Bluff River. A farmer's wagon traveling in the same direction as the automobile, caused Strang to turn his car to one side of the road, and it went over the steep embankment, crushing him beneath its weight. The two other occupants of the car saved themselves by jumping.

Lewis Strang first became famous as the driver of one of Walter Christy's freak racing machines, and ever since had en-

joyed the reputation of being a fearless, daring driver. He held many records on road and track, having won the Savannah road race of 1908, the Briarcliff Trophy, the 24-hours race at Brighton Beach, the Lowell (Mass.) road race (all in the same year); the Ormond Beach 100 miles race (1909), and other big events. He joined the Barney Oldfield "troupe" and took part in many races at country fairs; became a member of the Buick racing team, with Burman and Chevrolet, and, finally, as star and manager of the Case racing team, he competed in the International Sweepstakes on Memorial Day, at the Indianapolis speedway.

When the Wisconsin Automobile Association started its endurance run, Strang was chosen to drive the pilot car, a Case; with him at the time of the accident was Joseph Jagersberger, his racing team mate. Strang was a native of New York, and 26 years of age. About two years ago he somewhat romantically married an actress, who survives him.

A. C. A. Issues 876 Pages of Tours.

The new Tour Book of the Automobile Club of America, which has just been issued and which now is on sale to the general public, has been published on a loose leaf system with flexible morocco leather cover. The latter is designed to last for an indefinite period, whereas the contents may be changed and added to from time to time as new or corrected routes are compiled by the Bureau of Tours.

The book contains 22 sectional pages, 20 of which are printed on double pages and two on four pages. On the backs of the sectional maps are 125 city maps, showing tourists how to pass through the principal places encountered on the main traveled trunk lines.

In addition to the 900 odd routes giving full running directions in all parts of the country, the volume contains a description of Canadian customs regulations and licenses; customs regulations of the United States and all foreign countries; ferry information and timetables; foreign touring information; lists of hotels and garages; information in regard to automobile insurance; a summary of state motor laws; a complete index of all cities and towns through which the routes pass, totaling some 4,500 names; an index of city maps; an index of routes, etc.

Practically all that is contained in the four volumes of the public motoring guides of the United States is embraced in the 876 pages of the Club Tour Book.

Colby Organizing a Racing Team.

The Colby Motor Co., of Mason City, Iowa, is "going into" racing. It already has engaged W. F. Pearce, who drove one of the Fal racing cars, to manage the Colby team which is being organized and which will participate in practically all of the year's more notable events.

KISSEL INVENTS A NEW STYLE

Semi-Touring Body All that Its Name Implies—A Fourth Model Added to Complete the Line.

In designing its new models the Kissel Motor Car Co., of Hartford, Wis., has evolved at once a new style body and a new name for it. The designation, which is novel, is that of the semi-touring car, and the style itself may be described as a combination of the advantages of both touring and small tonneau types. The semi-

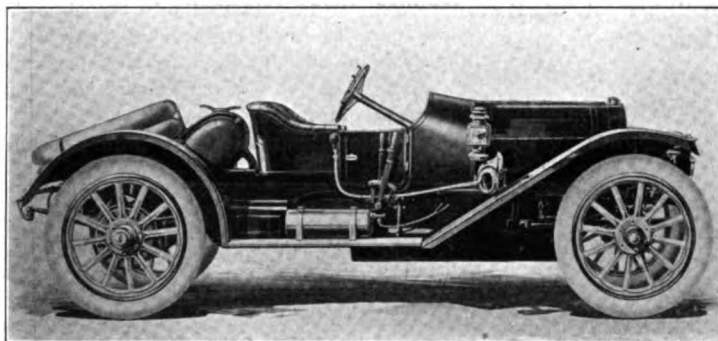
sible and it retains the characteristics that were present in the last series of cars produced. In order, the prices are \$1,500, \$1,850, \$2,350 and \$3,000. The 50 and 60 horsepower models, therefore, have been advanced \$350 and \$500, respectively.

The 40 horsepower chassis is a new one, having been introduced to complete the line. It has the same cylinder dimensions as the six-cylinder machine, that is to say, $4\frac{1}{2} \times 4\frac{3}{4}$ inches, bore and stroke, 118-inch wheel base and a three-speed change gear. It is mounted on $35 \times 4\frac{1}{2}$ -inch tires and is equipped with either semi-touring car or semi-racing bodies.

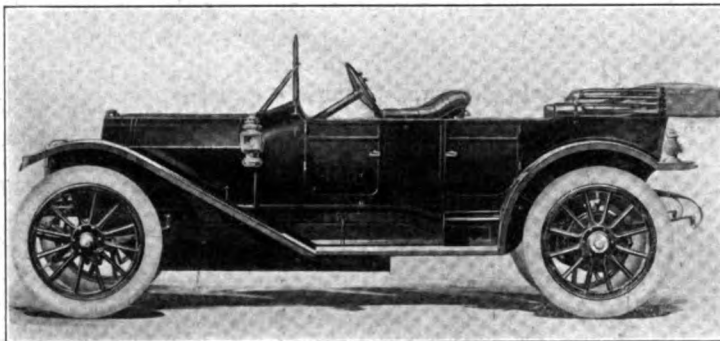
Speaking of the general design of the

and, particularly, in the full touring models, serves to eliminate a certain suggestion of "chunkiness" that otherwise might be present. The semi-racer type, so-called, it as attractive runabout, built with rakish steering column, well hooded dash, moderately high sides and a novel fuel tank in the rear, back of which is the spare tire carrier.

The standard equipment which applies to all models except the 30, includes mohair or pantasote top and cover, windshield, gas lamps, Prest-O-Lite tank, shock absorbers, front and rear, demountable rims, speedometer, tire carrier, oil dash and tail lamps, robe and foot rails, horn, jack, pump and



THE KISSEL 30 HORSEPOWER SEMI-RACER



THE NEW 40 HORSEPOWER SEMI-TOURING MODEL

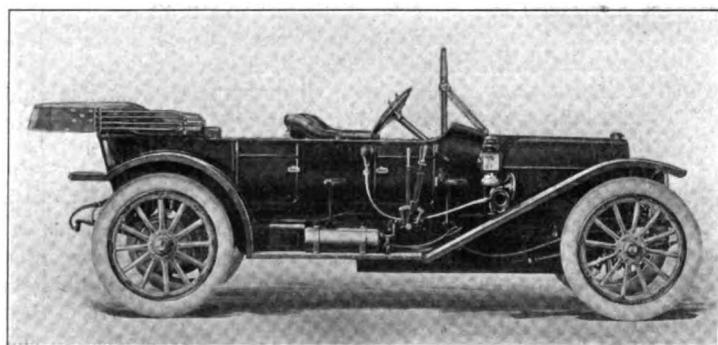
touring type of body, which is applied to the entire line, carrying out the idea of uniformity in a variety of sizes, is not a small tonneau affair, however, being rather a light and convenient touring car of closed-front construction, designed to carry five passengers and having the snug qualities of the torpedo with the cowl dash of that type, as well as the comfortable seating of the full-fledged touring model. The latter, by way of contrast, is a little larger, a little more roomy, a little higher in the

series, but few alterations have been made. They include a redraughting of the frame lines, in order to afford an inward curve in front, whereby the turning lock is materially increased and, correspondingly, the handiness of the car when maneuvering in close quarters. A so-called Mercedes type of radiator has been adopted, the wheel hubs and bearings have been enlarged and the rear axle design has been changed to afford a tapered effect.

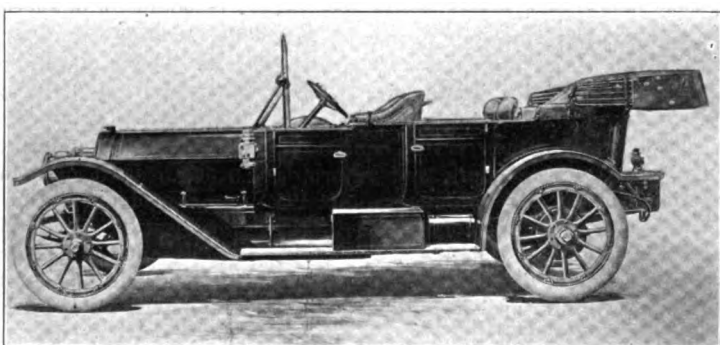
The body designs are uniformly of the

tools. The model 30 is not regularly equipped with either windshield, shock absorbers, demountable rims, speedometer, tire carrier or tonneau rails. Otherwise it has the same equipment as the larger cars.

Mechanically the design is thoroughly modern, embracing such features that are approved by general adoption as dual ignition, self-contained automatic oiler, semi- and three-quarter elliptic suspension, Timken roller bearing mountings throughout, except in the change gears, where F & S



THE 50 HORSEPOWER IN SEMI-TOURING FORM



THE 60 HORSEPOWER SIX-CYLINDER TOURING CAR

seat backs, and a little more luxurious and impressive in appearance.

The Kissel line, as just announced, consists of four chassis, namely a 30, a 40, a 50 and a 60, the numerals, of course, indicating both the type and the horsepower. As heretofore, the largest model is of six-cylinder construction, the others being equipped with four-cylinder motors. The general design and construction is the same throughout all models, as nearly as is pos-

sible and it retains the characteristics that were present in the last series of cars produced. The straight line effect is carried out in the top rail of the tonneau, the front doors and the upper line of the hood, but is broken up to some extent, by the fine moldings and paneling at the tops of the doors. The rear guards are shaped over the wheels with a straight projection in the extreme rear, while the front members are given a long slope, which adds a rakish effect to the vehicle,

annular ball equipment is used. Three-speed change gears are employed on the 30 and 40 horsepower models and four speed gear sets on the 50 and 60.

To complete the line each of the four models is listed in coupe form, while the 40, 50 and 60 models also may be had with limousine mounting. The enclosed cars are of staple design and thoroughly outfitted, their prices ranging from \$2,100 to \$4,200. An unusual and most attractive feature of

the offering, however, is the fact that the price quotations uniformly include the touring body, which is interchangeable with the limousine. The line of commercial cars produced includes 1½-2, two, three, four and five-ton trucks, as well as omnibuses, ambulances and fire apparatus.

Growth of Motor Cars in Japan.

Automobiles are rapidly becoming popular in Japan, says the Japan Weekly Mail, and bid fair to command a large demand among all classes of people. There were only a small number of cars in use in Tokyo up to last autumn, but they have since shown a great increase, so that about 160 automobiles are now registered in that city, or double the number registered towards the end of last year. An increase in the demand is also discernible in other towns. Yokohama has about 40 cars, Osaka 20, Kyoto 10, and Kobe 15 or 16. The use of motor vehicles for transportation of goods and other business purposes has not yet made any development, although there exists in Tokyo the Imperial Automobile Transport Co., which possesses 12 machines. Owing to a mistake in their original plan, however, only one automobile is fit for use, and this is chartered by the Department of Communications for the transportation of mail matter. The Naikoku Tsuun Kaisha has under consideration a scheme for the motor transportation of goods, and has recently placed an order for 10 vehicles. In provincial towns motor vehicles are gradually replacing omnibuses, and proposals are on foot in various places, especially in Echigo, Shinano, and Sanuki provinces, where the use of automobiles for the conveyance of passengers has shown a satisfactory result.

Unusual Test of a Fire Engine.

What is probably the most extraordinary trip ever made by a motor-driven fire engine was accomplished in Germany last month. One of the new monster gasoline engines contracted for by the fire department of the city of Berlin was sent on a forced run, under actual service conditions, from Berlin to Magdeburg and return, a total distance of 312 kilometers, or 195 miles, which run was accomplished in the remarkable running time of 9½ hours, using 24½ gallons of gasoline.

Immediately on arrival in Magdeburg the engine was rushed through the city to the fire-testing houses and there put through a rigid pumping test, in which the engine worked faultlessly. Half an hour was spent in pumping and then the return trip was started. On the return journey the apparatus attained a speed of 45 kilometers an hour, when forced to the limit. The engine arrived in Berlin in excellent condition, ready to go to a genuine fire at a moment's notice. One of the peculiarities of the new engine is the tire equipment, which consists of heavy tubes filled with an elastic material made of raw caoutchouc.

NEW MAXWELL MODELS ARE OUT

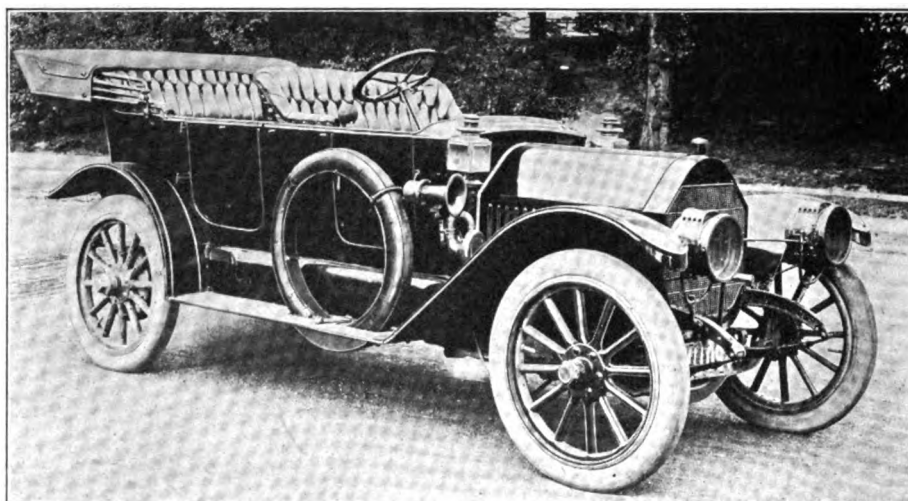
**Large Touring Car a Low-Priced Leader—
Outward Changes Alter Appearance—
Structural Essentials Preserved.**

Hereafter Maxwell models will be known by name, instead of by number, it being explained that while the numerical system of designation satisfies the requirements of shop practice well enough, it is apt to be confusing to the individual motorist, to whom it is barren of meaning. Therefore, the forthcoming line, which the Maxwell-Briscoe Motor Co., of Tarrytown, N. Y., just has announced, will consist of the "Special," "Mercury," "Mascotte" and "Messenger." The Special is a brand new model which is hailed as being most extraordinary, since it is a 36 horsepower touring

combination of royal green, with Wedgewood green wheels.

The new car will employ a new long-stroke motor, the cylinder dimensions of which will be 4¼ x 5¼ inches, bore and stroke; the four-cylinder style of construction and thermo-syphon method of circulating the cooling water naturally being retained, as is the dual ignition system with Splitdorf magneto and the force-feed oiling system. Multiple disk clutch, sliding gearset, full-floating rear axle, 34 x 4-inch tires and 114-inch wheel base, are other of its features. As the picture shows, it is a well-set product, clean lined and in good proportion, looking quite unlike the standard type of Maxwell that has become familiar, owing principally to the change in the form of hood and the absence of the brass band surrounding the radiator which has been inherent to the type of cooler hitherto employed.

The Mercury model is a "mile-a-minute"



MAXWELL SPECIAL, A NEW 36 HORSEPOWER TOURING MODEL

car, complete in every respect, and listed at the striking figure of \$1,280.

In a general way, the features that have characterized the Maxwell line in the past have been retained. The unit type of power plant, multiple disk clutch, sliding gearset, shaft drive and magnetic ignition are considered useful fixtures in the annual specification sheet. In enhancing the value of the renewed line, however, and by reason of the wide scope of the purchasing and manufacturing departments of the great United States Motor Co., of which the Maxwell company is an element, it has been found possible to make several changes affecting the appearance of the product. Thus the shape of the hood and the style of radiator have been changed to that long familiar in connection with the Columbia cars, also a U. S. Motor company product, the new style closed-front bodies have ventilated front doors and are of approved and pleasing design, while the finish has been considerably altered in appearance by the adoption of a new color scheme which, in the case of the Special, is a com-

roadster, listing at \$1,150, likewise equipped with a closed-front body of the new design and further distinguished by a special racing type of magneto as standard equipment and demountable rims. The Mascotte is a 25 horsepower car listing at \$980 in touring form and \$950 as a roadster. It is a continuation of the former model I, having a 4 x 4-inch motor, closed-front body with inside control levers—a new feature of the entire line, by the way, the Columbia style of radiator and hood, and what is designated as the Stoddard-Dayton type of spark and throttle control. The Maxwell Messenger, is disclosed as the 16 horsepower two-cylinder runabout, which is an established member of the line, and which will be continued with sundry refinements.

Motorizing South Bend Fire Department.

South Bend, Ind., has decided to wholly supplant its horse-drawn fire fighting apparatus with automobile apparatus. The purchase of the first machine, a \$7,000 chemical wagon, has been authorized, and the others will be bought as rapidly as possible.

FIRST IDEAL PRODUCT IS READY

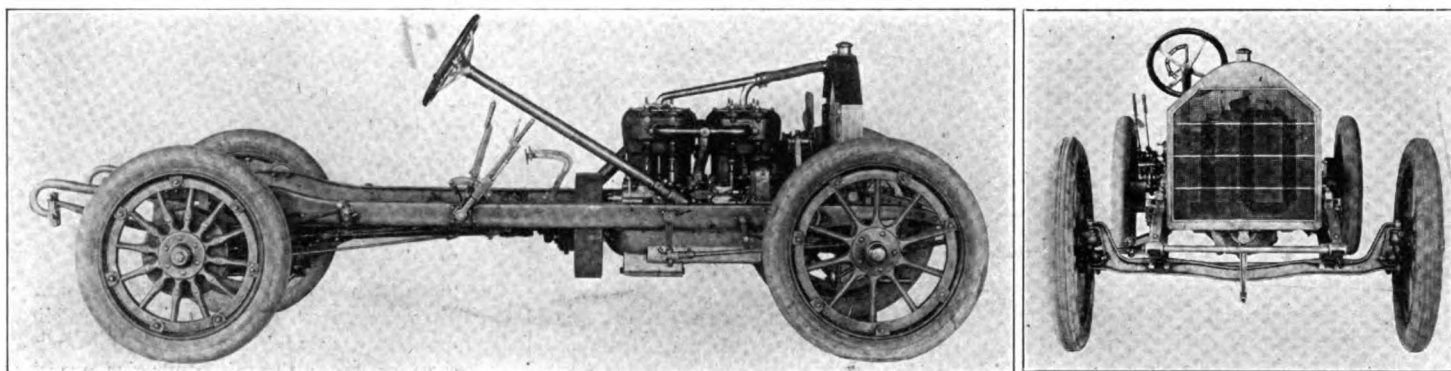
New Stutz Car Built in Three Styles on One Chassis—Solid Design Embodies Well-Tried Features.

Making its bow to the public under unusually auspicious circumstances, the new Stutz car, which was a contender in the International Sweepstakes at Indianapolis, on May 30 last, finishing in eleventh place,

4¾ x 5½ inches, bore and stroke, and are cast in pairs and offset ¾ inch from the axis of the crank shaft. The cylinders and valve passages are entirely water jacketed, circulation being maintained by means of a gear pump. The pistons, which are provided with four packing rings and as many oil grooves, are tapered from top to bottom, the upper end being three thousandths below size in order to allow for expansion in service. A geared pump forces the lubricating oil through copper oil leads to

changes of speed, one of its features being the arrangement of the shifting rods parallel to the torsion tube, which houses the propeller shaft, with the intent of providing against the possibility of the gears being thrown out of mesh as a result of spring action. The transmission and differential housing is a rigid unit casting and the trussed construction of the axle assemblage is calculated to give it great strength and rigidity.

The clutch is of the multiple disc type,



CHASSIS OF THE NEW STUTZ CAR, SIDE AND END ELEVATIONS

now has attained marketable proportions and its details have been announced for the first time. The Ideal Motor Car Co., of Indianapolis, its manufacturer, is a relatively new organization and the car which figured in the great race was its first product.

In general construction the chassis is of what may be termed standard proportions, although the actual dimensions indicate that it is not without originality. With a single chassis, which is illustrated by the accompanying picture, three styles of vehi-

cles are to be produced, namely, a two-passenger, a four-passenger and a five-passenger. Each of the models will sell for \$2,000. The car is low-hung, with a road clearance of ten inches, has 120-inch wheel base and is equipped with 34 x 4¾ inch tires front and rear.

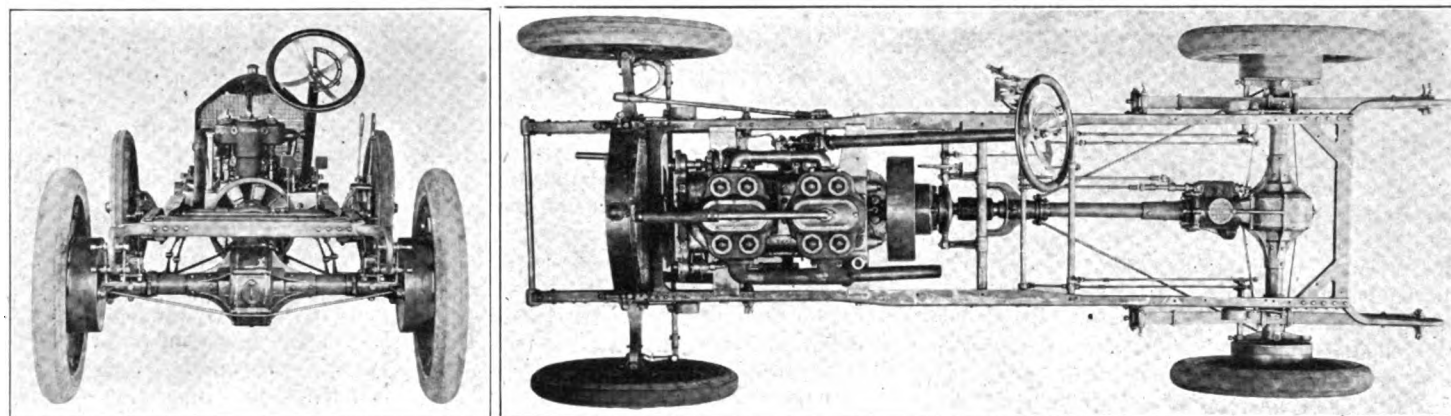
A T-head four-cylinder motor is installed in the chassis, the cylinders of which are

the main shaft bearings and thence, through internal ducts in the shaft to the connecting rods. Large crank and cam shafts, the latter being removable through the end of the crank case, liberally proportioned bearings, 2½-inch valves and Eisemann dual ignition are other of its features. The ignition system includes in addition to the magneto a separate breaker box for use when the battery is employed, thus obviating the possibility of pitting the magneto contact points. The non-vibrating coil and switch

running steel to steel, and is equipped with a small brake to prevent the spinning of the shaft while changing gears, as well as a double universal joint, to guard against possible warping of the shaft while running over rough roads.

The steering gear is of Gemmer pattern, affording a powerful differential screw action. It has an 18-inch hand wheel with engine control quadrant mounted above.

Twin internal expanding brakes are mounted on the rear axle, the drums being of 14-inch diameter and 4½-inch face. The



SHOWING MOTOR AND AXLE DETAILS OF THE NEW STUTZ CHASSIS

and the starting push-button are mounted on the dash. The change gear unit is combined with the rear axle according to a system which has been in use on other products for the last four years and which bears the name of the inventor, as does the new car, of which he is the designer. The gearset is of the selective order, affording three forward

front axle is of improved Timken design. The rear axle and transmission shafts are carried on annular ball bearings. Semi-elliptic springs of good length are used, mounted with double shackles and the Mercedes type of non-reversible rear loop. The frame is made with a 2½-inch "kick-up" in the rear to ensure ample clearance for the axle.

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USES POWER TO DUMP ITS LOAD

Gramm Develops an Ingenious Unloading Device for Trucks—Arranged to be Operated from Driver's Seat.

Illustrating how the power plant of the motor truck may be employed for auxiliary purposes, thereby increasing the utility of the vehicle as a whole, the Gramm Motor Car Co., Lima, O., just has produced a new type of mechanical dumping body, in which it is possible not only to perform the unloading operation in far better time than is possible where the ordinary hand-actuated dumping means is used, but which is so

tion and the method of its connection, it is possible for the driver to dump a load without leaving his seat, the time saved in a continuous haulage operation on this very account being a not inconsiderable item in the contractor's favor. The device is simple in construction and not likely to become deranged through rough handling.

The chassis on which the new body equipment has been installed, as the picture shows, is one of the six-ton chassis equipped with a 50-horsepower motor. The body has a capacity of 124 cubic feet, and the winch which actuates the dumping mechanism can be operated to raise the body to its full height in 40 seconds. In a test of the new vehicle seven tons of crushed stone were hauled over "give and

TWO SPARKS FOR MARMON ENGINE

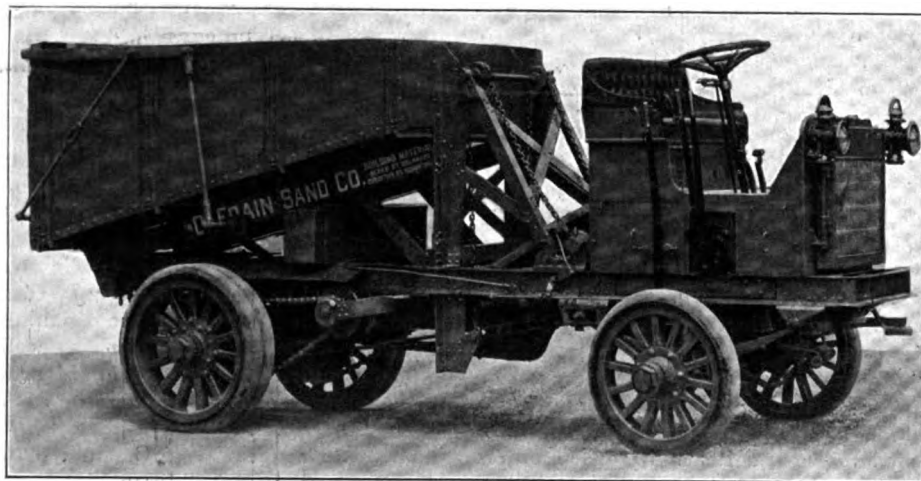
Ignition System Developed in Racing is Made a Stock Feature—Few Other Changes Found Necessary.

Following its two years and more of careful experiment in the fire test of the racetrack, the Nordyke & Marmon Co., of Indianapolis, Ind., has announced its intention of equipping its cars regularly with two-point ignition. In the new series Marmon Thirty-Two, the details of which have just been revealed, two sets of spark plugs will be used simultaneously, one set being mounted over the inlet valves and the other over the exhausts, as with the ordinary double ignition system. The use of two sparks at once, ensuring, as it does, more rapid inflammation of the charge than is possible where only a single plug is employed causes the engine to develop slightly more power and more reliable operation than before, although otherwise practically unchanged. As both batteries and magneto may be employed selectively, it follows that the full advantages of the dual system are obtained.

With this exception the construction of the car will be but little altered, which is saying a good deal for the merits of its design. It is now entering on its fourth year on the market, thus having been reproduced with few changes three successive times. What may be supposed to be equally important, its price, will not be changed, but will remain at \$2,750, whether for the five-passenger touring, the four-passenger suburban, so-called, or the two-passenger runabout. Limousine, landaulet and coupe models also will be produced.

Such alterations in construction as have been made, in addition to the change in ignition equipment, include an improvement and simplification in the clutch and brake pedal assembly, the adoption of ratchet controls for the spark and throttle levers, instead of the friction devices formerly employed, and the adoption of a differential gear that is made in the Marmon plant instead of being produced outside. The floating drive shafts of the neat rear axle construction, now are made with integral rather than riveted flanges, while the size of the brakes has been increased from 14 to 16 inches diameter. The front and rear wheels also have slightly heavier spokes. Even the body designs have been deemed worthy of reproduction, saving that the five passenger body now has an aluminum hood over the dash which is similar to that used on the four-passenger body.

In the matter of equipment, it is noteworthy that demountable rims are now a standard feature, while the tire sizes have been increased from 34 x 4½ inches to 35 x 4½.



SIX-TON GRAMM TRUCK WITH SPECIAL DUMPING BODY

constituted that the vehicle may be employed to spread its load over any required area, and in a layer of predetermined thickness. The machine has been produced for the Defrain Sand Co., a Philadelphia concern.

The body is of the tilting type, with a floor slope of fifteen degrees, when in the loading position. Under operation, the floor can be tipped until it assumes an angle of 40 degrees, the angular movement of the dumping operation thus amounting to 25 degrees. An automatic stop prevents the body from being raised beyond this point, thus preventing any ill effects as a result of careless operation. The end gate is automatically controlled, swinging open as the body is raised. According to its adjustment, it either opens sufficiently to allow the entire load to slide free of the body, or else remains at a fixed opening. In this case, only a limited amount of material can flow through the opening, as a result of which, a uniform layer is spread behind the vehicle as it is driven forward.

The dumping mechanism is a special arrangement which may be thrown into or out of action independently of the transmission. It is actuated by means of a side hand lever which is mounted along side the emergency brake lever. Owing to its loca-

take" country roads at the rate of ten miles an hour. At the end of the trip the stones were spread over the highway surface in a layer of even thickness and width.

McIntyre Brings Out a \$1,000 Model.

In keeping with the present tendency of the industry to offer the purchaser every possible inducement to invest, the W. H. McIntyre Co., Auburn, Ind., just has brought out a new \$1,000 model, designated D12, which is of the five-passenger closed-front touring type, and which will be ready for August delivery. The new car is driven by a four-cylinder 4½ x 4¾ motor of 35 horsepower nominal development, which has its cylinders cast in pairs and is equipped with large valves, long pistons, large bearing surfaces and other approved characteristics. Cone clutch, three-speed selective change gear, 114-inch wheel base, 34 x 3½-inch tires, magneto ignition and oil and gas lamp, generator, horn and tool equipment, are other of its specifications. The so-called special equipment, which is listed at \$125 extra, includes top, covers, windshield, speedometer and electric horn. For \$25 additional 36 x 3½-inch tires may be obtained instead of the smaller size regularly listed. The new model is to be put forth under a one year's guarantee.

The Muffler and the Cut-Out Nuisance

"Papa, what makes a gun go 'Bang'?"
"Powder, my son."

Papa lies. It is not the powder but the concussion resulting from its explosion that causes the bang. Concussion is a hard word to define to a small understanding, however, and so papa takes a chance with his conscience.

The parental short-cut to peace is to be recommended to those who are importuned to explain why an automobile makes a noise; the question always being safely interpreted to apply to the engine exhaust and not to the metallic clatter that sometimes arises from a pressed steel tool box bolted to a pressed steel running board. Gasolene may be said to make the motor roar. But if it be desired to placate a scrupulous inner man by telling the whole truth and nothing but the truth it will be necessary to get down to fundamentals, even if only for a minute or so.

When a body of gas under high compression is permitted suddenly to expand into a container the gaseous contents of which is at a lower pressure, an impact results which in principle is much the same as the impact resulting when a stone is thrown into the water, or, to make the illustration more exact, when a stream of water is poured into a pool. The impinging flow of gas causes a rippling disturbance of the inert body into which it is discharged, exactly in the same way that still water is disturbed under similar conditions. One important distinction is that while the churning of water is a result that can be both heard and seen, the "splash" that occurs when the ether is disturbed is audible only.

When the fleeing bullet "uncorks" the muzzle of a rifle the sudden release of the gases behind it produces an explosive disturbance of the surrounding ether which, in the small boy's vocabulary is called a "bang." By placing a series of curved blades in a casing surrounding the mouth of the rifle in such a way that the progress of the bullet is not impeded the sound of the report may be greatly subdued. About all that is left is a whistling sound as the spent gases escape from the casing and the sharp "ping" caused by the bullet itself as it plows its way through the air.

Much in the same manner as the firing of a rifle causes a percussive disturbance which is interpreted by the human ear as a peculiar and distinctive sort of sound, the sudden release of the gases imprisoned within the cylinder of an internal combustion engine when the slowly revolving cam wedges in under the tappet and pries the exhaust valve off its seat, is responsi-

ble for a similar report. And just as the bore and length of the gun, the grade of powder, the amount of the charge and the degree to which it is rammed, all are instrumental in determining the report of the shot, so the bore and stroke of the engine, the quality of fuel employed and proportions of the mixture, the quantity of gas and the compression are to be taken into account when the sound of an engine is to be analyzed.

The principle of the Maxim silencer for firearms, already referred to, is derived directly from the familiar gas engine muffler. It deprives the "exhaust" of the gun of its sound-producing qualities by robbing it of its kinetic energy. To accomplish this it deflects the gases and by suddenly changing their direction of travel causes them to expend their energy by impinging against the silencer blades.

In a Pelton water wheel the same idea is employed to produce power. Instead of the blades being stationary, as they are in a gun silencer, or in a gas engine muffler, they are mounted on the circumference of a wheel. Water flowing through a jet impinges against the blades, or buckets, as they sometimes are called, its energy of motion being translated into power at the wheel, while the water which overflows from the buckets on the lower side is absolutely inert and lacking in its former energetic quality. The principle of converting the kinetic energy of a moving fluid into the movement of a mechanism likewise is employed in water and steam turbines and in a somewhat similar manner.

In the case of either the turbine or impulse wheel the energy absorbed from the fluid is employed for power purposes. In the case of the muffler it merely causes stresses in the parts of which the silencing device is constructed but produces no external work. The energy there represented is used up in friction, and, in the case of a gas, in performing internal work, as it is termed, which is to say, in causing the gas to expand to a larger volume. This latter change is the principal one sought in the muffler, since the increase in volume also involves a reduction in pressure.

A similar effect may be secured by reducing the temperature of the gas, and this also is sought. But when the time element enters into account, as it must in the case of an engine exhaust where the successive discharges follow one another in extremely rapid succession, a material reduction in temperature can be achieved only where provision for a very rapid interchange of heat is possible. To muffle an engine by cooling the exhaust, therefore,

would require either a large volume of water, which would add weight to the apparatus, or else a rapid circulation of either water or air, which would involve the application of power and introduce mechanical complications. Hence expansion and friction chiefly are depended on for silencing purposes.

Hitherto the muffler question has received but little attention at the hands of the average motorist. Since the public came to take a wise and sometimes impertinent interest in automobile affairs, however, muffler practice has assumed a new importance. There is a never-to-be-forgotten significance in the popular discoveries that searchlights can be dimmed or extinguished while the car is being run through brightly lighted city streets, and that engine smoking can be suppressed. Even before the anti-dazzle and anti-smudge crusades, ordinances and even state laws had existed against the use of the muffler cut-out under certain conditions, but they were lightly regarded. Now, however, it is a different story. The public has roused to the important fact that the things that led to motorphobia, the things that made the automobile an abomination in the estimation of its opponents, are not germane to its usefulness. Therefore it is high time for the supporters of motoring in all its phases to study certain of its problems with renewed interest and attention.

Superficially it looks like a comparatively simple matter to fit a silencer over the end of an engine exhaust pipe and keep it there. Just why there should be such a device as a muffler cut-out, or why anyone should want to use it is something that certain thoughtful people find it difficult to understand. The more they look the problem over the less easy it is to gather the real use of the cut-out. There are many cars in which it does not seem to add the smallest part of a playful ponypower to the engine, let alone a single full-grown horsepower, and in which, also, it does not add materially to the noise—which is another important consideration. The only question is as to whether such a condition bespeaks the vanguard or the rear rank of automobile practice. As in the case of the shotgun or rifle, the answer is to be sought partly in the inherent qualities of the combustion process and partly in the silencer itself.

The root of the muffler problem carries it right back to the beginning of heat engine theory—thermodynamics, in other words. For the noise of the open exhaust depends on the pressure and volume of the

spent gases discharged. The musical note or "tone" of the exhaust also depends to some extent on the speed of the engine, which is to say, the frequency of the successive beats of the individual exhausts. Thus under certain conditions—a long and comparatively unobstructed outlet through the muffler or exhaust pipe and a smooth-running engine—a certain speed may be found at which the note of the exhaust is much louder than at other times and where it assumes a distinct and, by association, hugely inspiring, musical tone.

At such times, as the bespectacled scientist would painstakingly explain, the pressure of the exhaust and the frequency of its "beat" combine to produce a rate of vibration in the exhaust pipe and muffler which exactly corresponds to the natural "resonance" of the outlet channel. The philosophy of the thing is very like that involved in the familiar text-book illustration of the small dog which shakes the large bridge to its very foundations merely by trotting across it in the most innocent way in the world. Just as the old rain barrel used to "roar" when Young America hollered into it "a certain way," so the exhaust outlet will reinforce the note of the engine when conditions are just right.

This always will be true to some extent. The reinforcement of the sound waves created by the exhaust will be reduced however, in a measure as the shape of the outlet is bent or broken up by intervening blades and as its walls are prevented from vibrating, either through the use of non-resonant materials or through the mechanical dampening effects of flexible connections and lagging. A large diameter exhaust pipe leading straight through to the rear of the car with a cut-out just in front of the muffler usually will produce a fine deep roar at certain engine speeds. A smaller pipe or one that has sharper bends will have less natural resonance. A large pipe that is properly lagged sometimes may have less resonance than one that is not.

To go a little deeper into the thing, it is useful to consider how far the original design of the engine determines the quality of its exhaust. That it is more than a question of cylinder dimensions a moment's reflection will show, particularly if recollections of some of the early "one-lung" engines be particularly vivid. Small wonder that hill-climbing was in the hands of the gods when half the power went up chimney, so to speak!

Engine speed must vary, of course; that is an unalterable consideration. The pressure of the gases at the instant of release, which is the other determining factor in the sound of the exhaust, is an inherent property of the design. It depends to some extent on the quality of the mixture, which is to say, on the completeness and rapidity with which combustion is carried out, and it also depends on throttle opening, or on the volume of mixture previous to combustion, and on compression. Mainly, how-

ever, it depends on compression and on the timing of the exhaust valve. An early opening valve, other things being equal, means a noisy engine, a late opening valve one that is not so noisy. The reason is that the later the valve opens the lower the pressure in the cylinder. But these are things that are beyond the control of the motorist himself, and are practically unalterable once the engine has left the draughting board.

At the same time it is noteworthy that the deep-toned baying of some of the more modern engines is a perquisite of the long-stroke motor with a clear outlet. The relatively low pressure of the exhaust and the moderate rate of revolution renders them particularly easy to muffle without loss of power. That is the real point involved in the muffler problem. Any kind of an engine can be muffled down to a whisper. Such a course would involve the absolute strangulation of some motors, however. If you plug up the chimney the fire will not "draw," and if the engine exhaust is choked power is lost. If the outlet were entirely stopped the engine could not run. On this principle it will be recalled that some of the early engines were governed by a device which prevented the exhaust valves from opening when the speed became excessive.

Correct muffler design, therefore, provides a constantly increasing area in the passages through which the gas is led, and also a series of deflectors to check its velocity. But the constant aim of the engineer is to provide as much expansion as possible with no more mechanical impediment to the flow of the gas than necessary. Hence in place of the multiplication of perforated plates and tortuous passages that used to be employed, modern mufflers are of comparatively simple internal construction. They rob the gas of its energy by permitting it to expand to the lowest possible pressure before reaching the atmosphere.

It may be admitted without fear of contradiction that muffler design may be subject to considerable improvement during the next few years, particularly as the demand for quiet operation becomes more insistent. At the same time it is a fact that the average muffler now used, if in good condition, does not seriously hamper the engine, and that is the nub of the problem as far as the relations between the motoring and non-motoring elements of the public are concerned.

What is termed a good muffler is variously stated as absorbing from three to six per cent. of the total power output of the engine. A dirty muffler, of course, will absorb more. Some day, doubtless, mufflers will be so constructed that they can be cleaned without serious inconvenience. At present and with most constructions, cleaning is a difficult process and one which cannot be carried out thoroughly unless the casing is taken apart and the

plates brushed and scraped perfectly clean.

Even allowing as much as six per cent., however, the proportionate loss of power is small as compared with what is absorbed in other ways. Transmission losses, for example, seldom run below 20 per cent. on the average. In a 30 horsepower car, therefore, six horsepower would be lost in the transmission as compared with 1.8 horsepower absorbed by the muffler. With the modern tendency to overpowering, the last six per cent., therefore, seldom would be essential to the satisfactory performance of the car. As a matter of fact, most engines probably develop their full rated power with the muffler when running at normal speed, while the extra one or two horsepower which might be supposed to be added when the muffler is cut out, actually is materially reduced by the resistance of the exhaust piping and the friction set up in the cut-out itself. The very slight difference in speed observable when the average cut-out is opened is sufficient evidence of the comparative uselessness of the device.

That running with the cut-out open tends to keep the engine cool, is a familiar contention and one that is probably well grounded in cases where the muffler is of poor design or where it is literally filled with carbon deposit. When the muffler is of good design and is clean, it makes little difference. A dirty muffler, indeed, may become a very serious drag on the engine, but that fact need not be construed into an argument in favor of the cut-out. A dirty cylinder, too, will cause an engine to run poorly. Dragging brake bands use up a lot of useful energy, but when their poor condition is discovered it is not customary to remove them altogether; they are cleaned, instead.

Ultimately, of course, the designer will take care of the muffler problem, as he might have done before now had he not been busy with other things. In the meantime, the owner of a well put together car should have no real requirement for the muffler cut-out. If he finds that he has, he had better take it to the agent and learn what is wrong with it. The public is perfectly right in its contention that needless noise is an abomination and sooner or later the public will prevail.

"Yes, but—" says the man who owns one, "but still I don't quite understand why Jones's car makes so much more noise with the cut-out open than mine does."

"The probability is, Mr. Man, that Jones's car has a short-stroke engine and that the exhaust valves open under greater pressure than do those of your motor," answers the Y. M. C. A. student. "Another point is that the tonneau of your own car excludes a large proportion of the sound that actually is made by the engine. That is one reason why the man in the car and the man in the street are apt to be at variance in their views of the cut-out problem."

THE "NIGHT MAN" IN THE GARAGE

He Has Opinions of Managers and Things
and Voices Them—His Help and
His Worries.

"Who is the 'wise guy' that has been telling you all those things about running a garage that you have been publishing recently," asked a night foreman of an up-town garage of a Motor World man. "Well, no matter who he is, garage managers are nearly all alike in thinking they know all about the details of the garage business. But as a matter of fact few of them know much more than the office details. Of course they talk about the chauffeurs and others with whom they come in contact during the day, but they know little or nothing of what the night man has to contend with, because the night man seldom talks about his work. Of course the day foreman has his troubles, but the manager then is within reach and they are straightened out without much difficulty. With the night man it is different.

"I have been in the garage business for about ten years and know a thing or two that even the garage manager, the day foreman or the automobile owner may find hard to believe. These people know nothing about the doings after dark. Most of the managers I have come in contact with, expect the employee to 'deliver the goods' and nothing more. Never do they take the night man into their confidence and let him know 'who's who,' as it were. It is all very well as far as it goes but it does not go far enough. A night foreman should know all about every car, every owner and every chauffeur that is connected with the garage. Of course, as a rule, they become acquainted with the chauffeur but not with the owner, unless he happens to drive his own car and does not employ a chauffeur.

"In many walks of life the manager can give instructions and go away for the day with the knowledge that they will be carried out to the letter. With the garage business it is different. In many cases the managers are men who have drifted into the business because of their acquaintance with some man of means. Very few have their own money invested, unless it is a small sum in a corporation formed by financial acquaintances. This in many cases causes the manager to think he is the king pin of the establishment and he makes his own hours, as a general thing, from nine o'clock in the morning until about five in the afternoon.

"I don't mean to say that the manager has no right to make his own hours. He can do as he likes. However, I do mean, generally speaking, that few if any of them here in New York understand what the night foreman has to contend with in order to have the automobiles in first class con-

dition early in the morning. Owners, of course, are not expected to bother about such things. All they have to do is to remain out as long as they wish and order the car for a certain hour in the morning. In this they are correct. They pay for the service and without them the garage could not exist. Many managers do not grasp this fact and whenever a chauffeur makes a complaint, the night force is hauled over the coals. I have lost several positions because I would not let chauffeurs walk over me.

"My experience with chauffeurs has been extensive, because I have never been connected with a small garage, and therefore have come in contact with enough of them to be able to know the right kind from the wrong. I have found the chauffeur who has absolute control of his employer's car to be the best sort. That is to say, it has been my experience that the only chauffeur who has absolute charge of the car and can store it in whatever garage he desires I never have any trouble with. I know there are garages that practically are 'run' by such men but somehow we have escaped them. Our men are of the old school and take the car out only when absolutely required. They do not belong to the class that learned automobile driving in one of the 'schools' and went into the business because they intend taking life easy and make the automobile owner pay the freight. The new chauffeur is one who knows it all and wants to direct; while the experienced man never lingers around the garage unless his car requires some special attention. When the trouble is adjusted he goes his way. When the employer has finished his ride, this class of chauffeur also is through for the night. He drives when required and then only in the interest of his employer.

"With the other class, or, in fact, the several other classes, I might say, it is vastly different. As soon as the owner is finished they begin to think of joy riding. I have known this kind to return to the garage when the night work was finished and raise thunder if we did not wash and polish the car. I lost my position in one garage for failing to keep the washers overtime to accommodate one of these 'joy-riders.' The manager upheld the chauffeur and I was doing my best to compel the chauffeur to take the unwashed car to his employer's house and have the automobile owner make an investigation. Instead I lost the position. The real automobile driver, and I am glad to say I have met a large number, never makes an unreasonable request, nor does he take the car out at unseemly hours. But, I regret to say, they form a minority of the number in the business.

"It has been said by managers that it is a hard proposition to secure good night foremen. Well, many of them do not appreciate a good one, when fortunate enough to obtain the services of a man who endeavors to do his duty to both the owner

of the garage and the owner of the automobile. Then again, this night man has to direct the workmen, and after the manager leaves the building in the afternoon, he is, or rather he should be, the absolute boss. Generally he is not, because the manager has some one or other whom he wants placed. Usually it is a chauffeur who is out of a job and the manager is helping him along. Such an appointment generally means more work for the foreman. He cannot very well discharge the man, although the latter usually is no good. Then the real night worker soon neglects his duties because the ex-chauffeur is 'stalling,' with the result that the foreman's life is made miserable.

"In some garages they try to enforce a rule that the washers and other help shall not drink. I would rather have men around me who drink moderately—although I myself never drink—than one who does not indulge. The former will work as long as he is sure he is going to have his occasional drink, no matter how hard the work may be. Frequently they will work overtime without being told, although no extra money is allowed for overtime. On the other hand, the ones who never drink, frequently 'go up in the air' at a small thing and walk out of the building. I have had them to do this on me at three o'clock in the morning, when at least twenty automobiles had to be washed before sunrise.

"The night foreman should have absolute charge of everything because he is called to account for everything that is amiss. He is responsible for the shortcomings of the other help and he should have power to employ his entire force. Many managers say that they give such power to the foreman, but frequently they order the night foreman to retain a particular man or to make a place for someone else whom the foreman never has seen and who may or may not fill the bill. If this is giving entire charge, well, you will have to 'show me.' I have been up against all classes and I know. Some managers, I must admit, do back up the night foreman in everything, but they are few and far between and soon leave the garage end of the business for some place in the automobile industry that gives larger financial returns.

"Regarding the pay of the night help. The foreman, as is generally known, receives very little over three dollars a day for a week's work of seven days. Of course some get five dollars a day, but as a rule it is three or four dollars. The washers receive \$18 for a seven-day week if they furnish their own boots and aprons, or \$16 if the garage furnishes the boots; and the other employees range from that amount down to \$10 a week. The work is worth more, in fact at least 25 per cent. more, especially as vacations are unknown and for each hour or day lost a deduction is made. This is not right and is one of the reasons that the help is constantly changing. I like to hold my men together as

long as possible, for it is the only way to obtain good results. They get to know every car and take an interest in their work. With better pay more pleasing results could be obtained. I do not mean from the automobile owner's standpoint but from the viewpoint of the foreman who takes an interest in his task. Many cars have left our garage in the morning that were satisfactory to the owner, but I can honestly say they did not satisfy me.

"Garage managers claim they cannot pay larger wages because the automobile owner will not pay more for storage. This is nonsense. Give the employes half of the commission that is paid over to the average chauffeur each month and better salaries will result. Of course it is not for me to complain about what the chauffeur receives, as I have nothing to do with that end. What I want is more money for the help that actually accomplishes the things that keep the garage owners and managers in business. Then again the chauffeur who is always looking for a commission or tip is the hardest one to get along with; they are constantly kicking and never seem to be satisfied. On the other hand, I know chauffeurs who do not ask for commissions nor would they accept one of it were offered. They never kick. When they have to get out particularly and want the boys to be extra particular, I have known them to give them a little present. The other kind demand things. However, it is the same in every walk of life, I suppose, but the mean traits of character do not come out as strongly as they do around a garage.

"There are many more things concerning garages and their management that I could talk about, but should I tell too much, not only the chauffeur, but garage owners as well will be after my scalp, but as my business is looking after the night end of the garage and although I quickly would change for a daylight position, I have been so long a night owl that I suppose I had better remain one."

Shoe Repairing Brought Up to Date.

To telephone for a cobbler, have him dash up to the door in an automobile, take the shoes and return them, soled or heeled or patched, in a few hours—also per motor car—would seem like a dream of 1920 or thereabouts. At least to the average cobbler it must seem a fairy tale. But, as a matter of fact, a shoe repair concern in Syracuse, N. Y., already has installed one motor-driven delivery car, of 1,000 pounds capacity, and is contemplating the addition of another. The driver of the car is furnished with a long list of people residing in a certain direction from the store and he drives to their homes at good speed. In less than two hours he has finished the trip, is back at the store with a hundred or more pairs of shoes, and is off on the second trip. Returning from this trip he finds the first batch of shoes ready for delivery and repeats his morning route. The

store's customers thereby get their shoes back in about three hours without having to move out of their homes, and at a price equal to that charged by the average shoe repair man. Since installing the automobile delivery wagon, the business of the enterprising "quick shoe repair company," as it styles itself, has grown extraordinarily, as 75 per cent. of the orders come by telephone, and another wagon soon will be added to take care of the increased work. As an advertising proposition it has proven of great value, also, some of the orders coming from as far as four and five miles away. The average cobbler is lucky if his trade extends to four or five blocks on either side of his little shop and he never bothers about fetching shoes or delivering them after repairing.

Tow Ropes Lead to \$30,000 Suit.

The unusual accident in Salt Lake City on February 18, 1911, in which the circulation manager of the Salt Lake City Tribune, James W. Musgrave, was run over by an automobile, had its sequel last week, when a suit for \$30,598.50 damages and costs was filed against the Studebaker Brothers Co., owner of the car. Musgrave, in his complaint, alleges that on the evening of the day named a string of Studebaker automobiles connected with ropes was being taken up East Second South street; that the cables or ropes were allowed to drag across the crossing; that he stumbled over one of them, falling beneath one of the cars which passed over his body. He furthermore alleges that he was permanently injured and asks judgment against the company in the sum of \$30,000, with \$598.50 additional for expenses incurred.

Horses Ousted After 21 Years' Service.

After using horse-drawn stages for 21 years, the Forest Park Hotel, at Forest Park, Pa., has discarded the antiquated equipment and installed a number of seven-passenger touring cars to carry prospective guests from Bushkill, the railroad station, over the four miles of five per cent. grade to the hotel on the hill. While the horse-drawn stages were only capable of making three round trips at the utmost, the automobiles can make as many journeys as are desired, doing the work much better, quicker and to the greater comfort of the passengers than it has been done before. So successful has the equipment shown itself, that Arthur Lederer, the hotel owner, intends to add two more cars for next summer.

Michigan Lad as a Lamp Collector.

William Auglin, a 15 year old boy, who is in jail in Grand Rapids, Mich., has confessed to having pilfered lamps and other accessories from more than 100 automobiles. In his father's barn 20 headlights and 70 sidelights were recovered, in addition to 30 bicycles and other things.

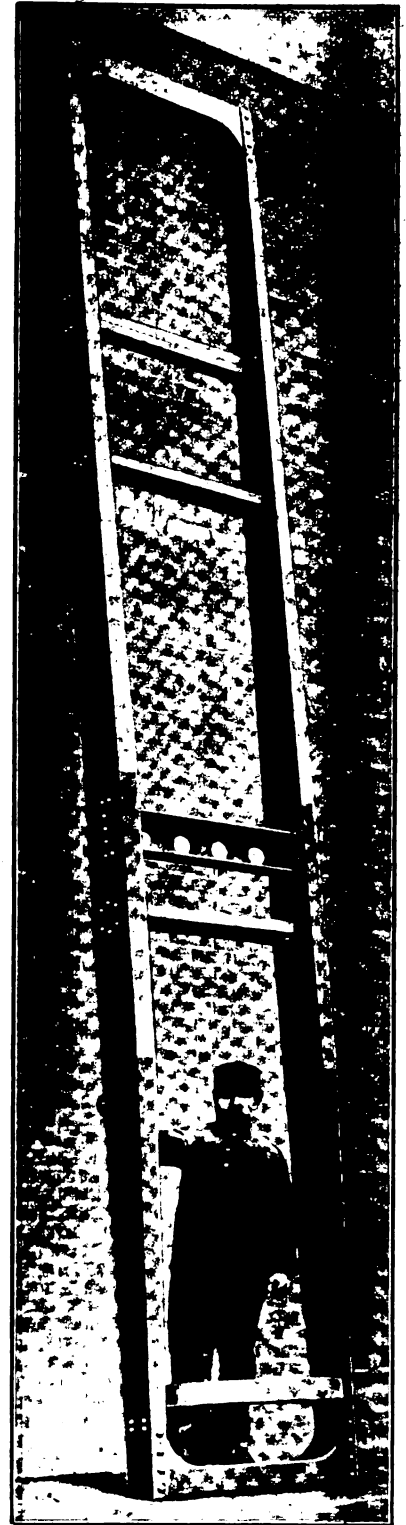
HYDRAULIC PRESSED STEEL CO.

Cleveland, Ohio

R. B. McMULLEN

General Sales Agent

Chicago

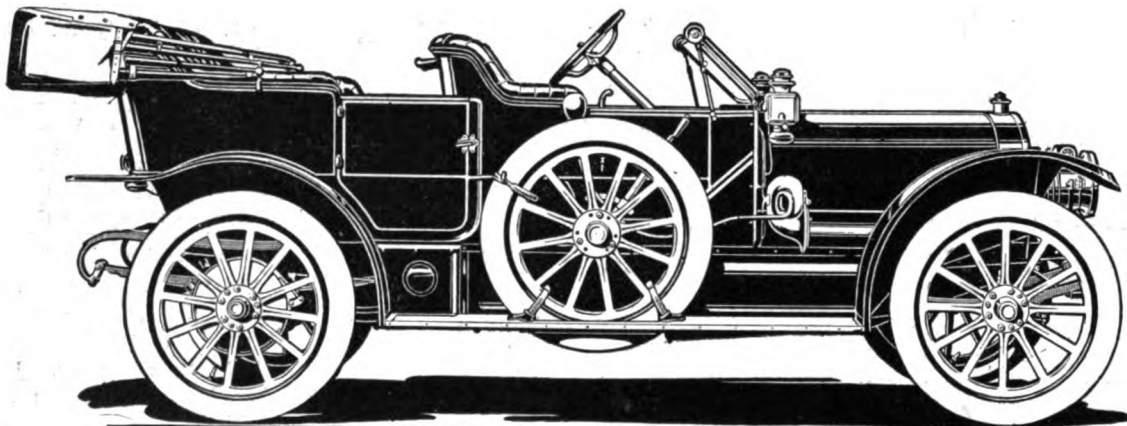


TRUCK FRAMES

1/2 Ton to 10 Ton

Rambler

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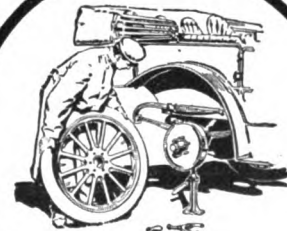
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989,457. Automobile Spindle Device. Harry Walker, Maxwell, N. Mex. Filed Dec. 24, 1910. Serial No. 599,201.

1. A lamp operating mechanism comprising a lamp bracket having an angled lower end adapted to be pivotally mounted upon a spring, a rod pivotally connected with said angled end, and adapted to turn said lamp, a bracket adapted to be secured to the spring, a vertical arm pivotally connected with the lower end of said bracket and provided in its upper portion with a longitudinal slot, a bolt passing through said slot and slidably connecting said first mentioned rod with said vertical rod, a horizontal arm, a universal joint connecting said horizontal arm with said vertical arm, a link, a universal joint connecting said link to said horizontal arm and means for connecting said link with a wheel knuckle.

989,501. Driving and Steering Device for Vehicles. Edward Anthony Gotterba, Bisbee, Ariz. Filed June 30, 1908. Serial No. 441,053.

1. A propelling and steering device comprising a driven shaft having a spherical terminal, a wheel having a two part hub formed with a socket in which the said spherical terminal is journaled, a ball key seated on the said shaft terminal and engaging an elongated groove in the said hub, a steering and guiding head under the control of the operator and having a flange engaging the inner face of the hub, a retaining ring engaging the inner face of the hub and having a portion extending over the said flange, and bolts extending through the retaining ring and the parts of said hub.

989,515. Carburetter. Edmund Sprung and Harry Rose, Detroit, Mich. Filed June 3, 1910. Serial No. 564,758.

1. In a carburetter the combination with a float feed chamber, of a carburetter chamber casing comprising a cylindrical shell having at one end thereof an air inlet opening and having intermediate its ends an air outlet opening in constant communication with said inlet opening, a non-rotatable hollow cylindrical throttle having apertures adjacent the outlet opening and a series of fuel supply tubes projecting diametrically into said throttle and terminating near the inner surface thereof, said throttle being longitudinally movable in said casing to bring said apertures into and out of register with said supply tubes.

989,659. Magnetic Tachometer. John K. Stewart, Chicago, Ill. Filed Mar. 29, 1909. Serial No. 486,362.

1. In a magnetic tachometer, in combination with a case, a post within the case; a permanent magnet element and an armature, one mounted for rotation on the post and the other supported fixedly on the case, the magnet element comprising a carrier and a magnet movable radially on the carrier; a low resistance disk positioned between the magnet element and the armature, having a spindle provided with a step bearing within the post and extending through the fixed element; a spring which operates to hold the disk yieldingly against rotation away from a predetermined position; an indicator carried by the spindle and means for adjusting the magnet radially on the carrier.

989,675. Headlight. Richard H. Welles, Kenosha, Wis., assignor to The Badger Brass Manufacturing Company, Kenosha, Wis., a corporation of Wisconsin. Filed Sept. 19, 1910. Serial No. 582,613.

1. In a headlight the combination with a lamp body of a reflector therein, a burner movably mounted between the front end of the lamp and said reflector, means for shifting said burner laterally in a substantially horizontal plane and means for shifting said burner upwardly and forwardly.

989,678. Automobile Starting Device. Clark B. Wilcox, Union City, Mich. Filed June 10, 1910. Serial No. 566,183.

1. An engine starter including a distributing cylinder having ports connected to the respective cylinders of the engine, a compressed air container surrounding said distributing cylinder, valves for closing the respective ports, a member mounted for rotation within the distributing cylinder, means for transmitting motion thereto from the engine and means for manually shifting said member toward the valves to unseat the valve in the path thereof and admit air from the container to the opened port.

989,697. Carburetter. Lorin L. Cutler, Danville, Ill., assignor of one-sixth to Thomas S. Cutler, one-sixth to Samuel H. Cutler, and one-sixth to Lorin Cutler, Danville, Ill., Filed July 22, 1910. Serial No. 573,265.

A carburetter comprising a casing having an air inlet at its lower end, a vapor outlet at its upper end, a disk removably mounted in the air inlet and having openings through it, a series of concentric conical screens having their bases supported upon the disk over its openings and having their walls parallel with and spaced from each other, and a liquid fuel supply pipe leading through the side of the casing and having substantially semi-circular branches pierced with a ring of apertures standing above the wall of the uppermost screen.

989,742. Speedometer. John F. Wilkie, Hibbing, Minn. Filed Oct. 23, 1909. Serial No. 524,104.

In a self-propelled vehicle, the combination of a vehicle body; a driving mechanism for propelling the same; an indicator shaft which extends from end to end of and is carried by said vehicle body; a governor mechanism which is driven by said driving mechanism and which drives said indicator shaft; a pair of dials one of which is mounted at the front of said vehicle body and the other of which is mounted at the rear of the same; and a pair of index hands, one for each of said dials; said index hands being moved over said dials by the turning of said indicator shaft in response to the movements of said governor mechanism and said dials being mounted in plain view from outside of said vehicle body.

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989,846. Steering Mechanism for Self-Propelled Vehicles. Charles B. Hatfield and Charles B. Hatfield, Jr., Cornwall-on-the-Hudson, N. Y., assignors to Hatfield Company, a corporation of New York. Filed Mar. 12, 1910. Serial No. 549,022.

1. A steering mechanism for self-propelled vehicles comprising a steering axle pivotally mounted on a vehicle body, an arc-shaped guide pivotally connected to the axle, a steering post on the vehicle body held against vertical movement, a sprocket wheel on the steering post, and a chain passing around the guide and having connection therewith operatively engaging the sprocket wheel, said arc-shaped guide being supported from the vehicle body by means of the steering post and means connected with the sprocket wheel to preserve the relative position of the guide therewith.

989,884. Rotary Fan. William Sparks Jackson, Mich. Filed Sept. 6, 1910. Serial No. 580,623.

1. In a rotary power driven fan, a stationary hub, a rotary shaft journaled in the hub and provided with cone bearings, one of which is adjustable axially, fan blades having a supporting web mounted on one end of the shaft adjacent to the adjustable cone, means for locking the web to the shaft to rotate therewith and to permit it to be moved endwise relatively thereto, separate means for locking the web to the adjustable cone to hold the latter in its adjusted position against relative movement and movable means on the shaft to hold the web against axial movement when adjusted for use.

989,897. Steering Device. John F. Douthitt, Boonville, Ind. Filed Apr. 25, 1910. Serial No. 557,481.

1. The combination of a rotably mounted shaft section, a second rotably mounted shaft section arranged in longitudinal alignment with the first section, a clutch connection between the two shaft sections, whereby the second one may have a limited rotary movement independent of the first, opposing disks fixed to the two shaft sections, the disk on the first shaft section having a catch receiving seat and the disk on the second shaft section having a seat formed with inclined or cam surfaces and adapted to be brought into register with said catch receiving seat, and a spring projected catch adapted to enter said catch receiving seat and having a V-shaped portion to enter said seat having the inclined or cam faces.

989,919. Water Gauge. Joseph J. Menville, Houma, La. Filed Aug. 24, 1910. Serial No. 578,627.

1. A gauge comprising a housing provided with a reflecting inner surface, upper and lower lugs within said housing, a sight tube within said housing, means for clamping said tube to said lugs, means whereby water may be drained from said tube and for controlling the escape of air from said tube.

989,934. Engine Starter. Charles H. Smith and Arthur L. Goddard, Rockford, Ill.; said Goddard assignor, by mesne assignments, of one-fourth to Walter M. Lawton and one-fourth to Walter B. Taylor, Rockford, Ill. Filed Feb. 23, 1910. Serial No. 545,356.

1. In an engine starter, in combination, a shaft; a ratchet wheel fixed on said shaft; a pulley loosely mounted on said shaft; a pawl carried by said pulley and adapted to

engage said ratchet wheel; an idler; an endless connection extending about said pulley and said idler and attached to the pulley; a hand lever; and connections between said hand lever and said endless connection, said connections including a link having a portion adapted to engage the pawl and remove the pawl from engagement with the ratchet wheel.

989,963. Starting Mechanism for Internal Combustion Engines. Herbert M. Halls-worth, Riverside, Ill. Filed Aug. 19, 1910. Serial No. 577,926.

1. 'The combination with a multiple cylinder internal combustion engine, of engine starting mechanism therefor, comprising a supply of compressed fluid pressure, normally closed valve mechanism for controlling the flow of fluid from said supply to the cylinders of the engine and means operated by mechanically actuated fluid pressure controlling valves of the engine for opening said first named valve mechanism for the purpose set forth.

989,979. Transmission Gearing. Charles O. Johnson, Boston, Mass. Filed Nov. 6, 1907. Serial No. 401,042.

1. In a transmission gearing the combination with a driven shaft, of a plurality of gears of different sizes thereon, a countershaft, a plurality of gears of different sizes thereon, means to slide the gears on the countershaft and cams acting on both ends of one of said shafts to move it toward and from the other shaft.

989,984. Internal Combustion Engine. Joseph Nicolas Kieffer, Sevres, France. Filed Oct. 29, 1909. Serial No. 525,372.

1. In an internal combustion engine, the combination with the main cylinder and

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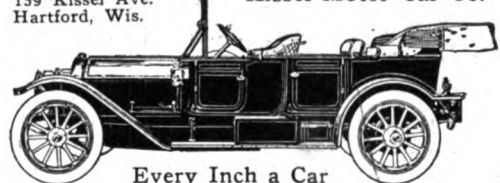
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Average cost per mile of tires (based on 10,000 mile service)	.034
Average cost per mile for tires, gasoline and oil	.053

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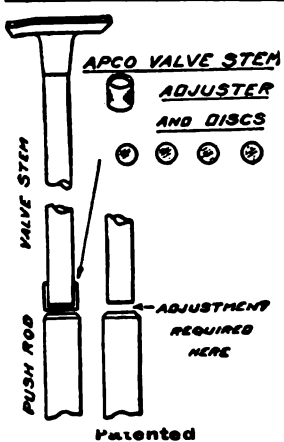
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piston, and the crank shaft driven by the piston, of a cylindrical valve chest having inlet and exhaust ports and a port communicating with the main cylinder, and two cylindrical valves relatively movable within the valve chest and one within the other and controlling the inlet and the exhaust though said ports and means driven from the crank shaft and at one-half the speed thereof, for actuating said valves.

990,082. Internal Combustion Engine. Ural Stilwell Traub, Yonkers, N. Y. Filed Mar. 2, 1910. Serial No. 546,938.

1. In an internal combustion engine, the combination with a cylinder, of an outer hollow piston reciprocating in said cylinder, a plurality of inner pistons reciprocating in said outer piston and a crank shaft driven by said outer and inner pistons independently.

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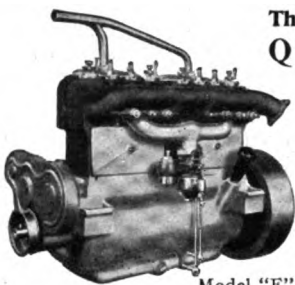
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THE MOTOR WORLD

Vol. XXVIII.

New York, U. S. A., Thursday, August 3, 1911.

No. 6

GENERAL MOTORS' TRUCK POLICY

Selling Company Formed to Market Output—Greatly Enlarged Line and New Service Department in View.

Having formed a separate company to handle its export business, the General Motors Co. has carried the idea further by organizing the General Motors Truck Co., which will control and market the entire output of all the General Motors' plants producing commercial vehicles, specifically, the Rapid and Reliance plants at Pontiac and Owosso, Mich.

The officers of the Truck company, the headquarters of which will be in Detroit, are the same as those of the General Motors Co. itself, as follows: Thomas Neal, president; Gleeson Murphy, vice-president; James T. Shaw, treasurer; Standish Backus, secretary.

H. S. Stebbins will be manager of the Truck company, and T. P. Myers, sales manager of the Rapid company, and L. J. Fasquelle, sales manager of the Reliance company, will continue to act in their present capacities.

The Rapid and Reliance vehicles, it is announced, will form the nucleus of a new line, the merger of the two selling departments being "merely the beginning of a plan to market a complete line of commercial cars which will be so broad and comprehensive as to cover every branch of hauling and delivery." There also will be established a "service, efficiency and maintenance department which will be equipped to analyze every phase of commercial hauling, apply or adapt the right truck or delivery wagon to the demand as it exists and maintain them in efficient service."

Poor Joke Played on Detroit Press.

Detroit is making a bid for the factory which Benz & Co., the famous German makers, are said to be contemplating establishing in this country. The Michigan

metropolis has offered the necessary land and the presence of a Benz engineer led some one to hoax the Detroit newspapers with a story that Diederich von Diebstahl, president of Benz & Co., and Karrel Schubjak, a director, were in the city and had acquired 10 acres of ground on which the American factory would be erected; also that James J. Brady, formerly of the Chalmers Motor Co., had been engaged to manage the plant. As a matter of fact, neither the Benz president nor the director is in this country, and their names as published in Detroit do not in any way resemble the gentlemen's correct names; they are "joke" names and rather insulting; broadly translated one means "robber," the other "wheelbarrow shover." Officials of the Benz Motor Import Co., in New York, state that the matter of an American Benz factory consists chiefly of an offer of land in Detroit which has not been accepted and never may be accepted. The Import company itself, however, just has leased two floors of the Galvin building in Long Island City, N. Y., which will be used as a semi-assembling and body building plant; the chassis will be imported, as heretofore.

Natco Trucks Coming from Bay City.

The National Motor Truck Co. has been organized in Bay City, Mich., by interests identified with the National Cycle & Mfg. Co., of that city, and expects to begin operations about October 1st next. It has purchased a large tract of land on which three factory buildings will be immediately erected, the first, 268 x 66 feet, three stories; the second, 50 x 60 feet, and the third, 80 x 60 feet. While heavy trucks ultimately will be manufactured, the first effort of the new company will be centered on the production of a 1,000 pounds delivery wagon which will be styled the "Natco." Henry B. Smith is president and F. C. Finkenstaedt is secretary-treasurer of the truck company. They hold the same offices in the National Cycle & Mfg. Co., which for several years has manufactured parts for several of the best known motor car companies in this country.

WEED CHAIN GRIP PATENT UPHELD

Court of Appeals Reverses Its Opinion in Excelsior Case—"An Entirely Novel Concept," it Now Declares.

After all, the Maxim & Bardwell patent of 1901 covering a leather non-skidding strap, does not anticipate or invalidate the Parsons patent of 1903, which covers the well-known Weed chain tire grip. The same court, the United States Circuit Court of Appeals for the Seventh District, which in January last upset the Parsons patent by reversing the lower court and holding that if "metal be substituted for leather the Maxim & Bardwell device becomes the Parsons device," and that such substitution did not constitute patentable invention, has changed its opinion, and last week handed down a decision reversing itself and affirming the judgment of the court below that the Parsons-Weed patent, No. 723,299, "is basic to a large extent."

It is said to be the first time in 25 years that the court has taken such action. The Weed company's attorneys, who so signally distinguished themselves by thus convincing a high tribunal of its error, are Frederick S. Duncan, of New York, and Edward Rector, of Chicago.

The parties whom the Weed company charged with infringement were the Excelsior Supply Co. and the Motor Appliances Co., of Chicago, who were responsible for the Zig-Zag chain grip, and the Pitts Chain Grip Co., also of Chicago, the evidence in the Excelsior case being applied to the Pitts suit, which rose and fell with the decisions affecting the Excelsior action. The Court of Appeals's reversal of its opinion holds that both the Zig-Zag and Pitts grips are infringements of the Parsons patent.

When the Court of Appeals for the Seventh, or Chicago, district, declared against the Parsons-Weed patent on January 2nd, its opinion, written by Judge Grosscup, was such as to hold no hope of the present re-

sult. Despite the forlorn hope, however, the Weed people applied for an oral rehearing of the case and it was accorded them. They then went all over the old ground in the effort to convince the court—composed of Judges Grosscup, Baker and Kohlsaat—of its error, seeking to show that Maxim & Bardwell's leather straps not only did not permit of the loose adjustment and "freedom of circumferential travel" or "creeping," which is the essence of the Parsons patent, but that the leather straps actually would be destroyed by use and were therefore commercially worthless.

This argument was presented in February and that the court considered the matter carefully is indicated by the fact that it required six months for the three learned justices to reach the conclusion that they had erred in their previous judgment, and that the "Parsons concept was an entirely novel one in connection with automobile anti-skidding devices." No one reading their final conclusion, however, would suspect that it is in the nature of a self-reversal; in no manner does it even suggest that previously the court had rendered a directly contrary opinion.

That portion of the decision which now sustains the validity of the Parsons-Weed patent, is as follows:

There are a number of patents in the record (Nos. 595,099, E. H. Graves, Dec. 7, 1897; 667,457, E. C. Rehfeld, Feb. 5, 1901; 135,128, D. W. Kellogg, Jan. 21, 1873, and others), known as metal traction devices, substantially like the patent in suit except that they are relatively narrow, intended to be placed upon the tread of a deflated tire and held in position on the tire by the tight inflation of the tire; that is to say, the radial pressure of the wheels. Of course, this pressure contemplated that there should be no movement of the bands around the wheel. They were, in this respect, different, both in underlying principle and in construction, from the patent in suit; nor would they have answered, we think, for automobiles (they were devised for bicycles), where the strain is hundreds of times greater than on a bicycle. The most these patents do is to point out and illustrate the prior use of metal for an anti-skidding band.

There are also a number of patents in the record (Nos. 98,126, R. E. Thomson, Dec. 21, 1869; 567,245, J. H. Lowrey, Sept. 8, 1896; 639,846, J. Coan, Dec. 26, 1899; British Patents Nos. 3,046, Archer, 1871; 14,719, Rose, 1898, and others), known as metal armors or jackets. But all these devices were constructed with the idea of rigid attachment to the tire. The tendency of these devices, in common with all other devices, to creep, is not the "freedom of travel" that Parsons sought. They are incapable of freedom of circumferential travel. None of these constitute anticipation, in our opinion.

Neither do the Gilbert nor Thomson devices, pressed upon us at re-argument, constitute anticipation. The Parsons concept was an entirely novel one in connection with automobile anti-skidding devices. It reversed entirely the prevailing notion that an anti-skidding device must, as far as possible, be integral with the tire. Gilbert and Thomson had no knowledge of automobiles, bicycles, or pneumatic tires of any

(Continued on page 406)

JUNE EXPORTS EXCEED \$2,000,000

Big Increase in British Oceania—Average Values Lower—Gains and Losses During the Fiscal Year.

Setting another high water mark for the month of June with a total of 1,554 cars, valued at \$1,702,872, exported to foreign countries, American automobiles exceeded last year's totals by 570 cars, and \$64,550 in value. Parts to the extent of \$324,886 worth were sent out of this country, as against \$256,484 worth in June, 1910. The most significant item of these statistics undoubtedly lies in the extraordinary drop in value, which sank from an average value of \$1,665 in June, 1910, to \$1,095 in June, 1911. Canada and Great Britain still remain the two best customers, although their proportionate increases have been smaller as in previous months, England, in fact, showing a loss of fully \$100,000 from its quota of June, 1910. The greatest gain is manifested by British Oceania, which increased its purchases from \$30,638 to \$206,130, a clear gain of 560 per cent. It now occupies third place, having passed Other Europe and South America.

The figures for the twelve months of the government's fiscal year, ending June 30, 1911, reflect the upward tendency which has been so pronounced during the past two years. During this period there were exported 11,803 cars, valued at \$12,965,049, and parts valued at \$2,544,180, as against 6,926 cars, worth \$9,548,700, and parts valued at \$1,641,520, during the previous fiscal year.

In this list Canada still leads by a wide margin with \$6,774,769, with Great Britain in second place with \$2,595,679, and British Oceania third with \$1,352,532. The showing of the latter, in particular, is noteworthy, as it jumped from seventh place in last year's list to third place, passing France, Other Europe, Mexico, and West Indies. Gains and losses are fairly well divided among the twelve divisions, seven of them registering increases, while five show losses. The report in detail:

	June		Twelve months ending June		
	1910	1911	1909	1910	1911
Automobiles and parts of—					
Automobiles	\$1,638,321	\$1,702,872	\$5,387,021	\$9,548,700	\$12,965,049
Parts of (not including tires) ..	256,484	324,886	605,179	1,641,520	2,544,180
Exported to—					
United Kingdom	617,371	529,382	1,812,091	2,656,214	2,595,679
France	241,500	37,948	661,525	825,904	532,121
Germany	48,006	19,886	141,056	275,241	251,629
Italy	18,163	18,517	241,660	337,614	215,041
Other Europe	129,525	117,555	329,170	550,414	764,287
Canada	661,625	861,975	1,602,980	4,383,487	6,774,769
Mexico	39,106	40,861	387,446	540,325	649,666
West Indies and Bermuda	7,335	27,724	255,158	413,888	398,593
South America	46,209	99,040	143,730	342,767	981,133
British Oceania	30,638	206,130	138,871	350,193	1,352,532
Asia and other Oceania	38,325	52,801	101,048	348,523	786,570
Other countries	17,002	15,939	87,465	165,650	297,209
Total	\$1,894,805	\$2,027,758	\$5,992,200	\$11,190,220	\$15,509,229

Wants Van to Disclose Its Condition.

Alleging that the Van Motor Car Co., of Grand Haven, Mich., which built a low priced runabout, has incurred liabilities amounting to \$85,000 and has assets of but \$45,000, the Frost Gear and Machine Co., of Jackson, Mich., has instituted an action designed to compel the Van company to disclose the exact state of its finances. A temporary injunction restraining the company from disposing of any of its property already has been obtained.

Tire Exports Pass \$2,000,000 Mark.

Exports of automobile tires for the month of June, 1911, reached \$246,625, while other tires exported were valued at \$54,063. During the year ending June 30, 1911, \$2,085,107 worth of automobile tires and \$592,470 worth of other tires were shipped out of the country. No comparative figures for the corresponding period of 1910 are available, as the government did not list tires separately previous to July 1, 1910.

Taxicab Company Files Its Schedule.

Schedules in bankruptcy of the Union Taxicab Auto Service Co., of 252 West 40th street, New York, which failed several weeks ago, show liabilities of \$15,087 and assets of \$4,864, consisting of taxicabs, \$4,225; accounts, \$570, and unexpired licenses, \$69. Among the creditors are the also embarrassed Cab and Taxi Co., \$10,319; New York Cab Co., \$1,200; W. J. Duane & Co., \$1,511, and Allan Lexow, \$1,520.

Barnes Acquires Steel Castings Account.

Claire L. Barnes & Co., of Chicago and Detroit, have added the Fort Pitt Steel Castings Co., McKeesport, Pa., to their accounts and will market its entire product of small steel castings. These castings are distinctive in that they are made from a direct steel process.

Truck Factory Starts in Grand Rapids.

The Van-L Commercial Car Co. is the unusual title of a truck building concern which has commenced operations in Grand Rapids, Mich. It occupies a two-story brick factory at the corner of Third and Railroad streets.

NEW MEN ENTER SELDEN AFFAIRS

James J. Joyce is Among the Number; He Assumes Sales Management—Changes Presage Aggressiveness.

Although it is not the intention to depart from its policy of happy mediums in production, power and price, the Selden Motor Vehicle Co., of Rochester, N. Y., has undergone an internal semi-reorganization which it is confidently believed will make the Selden car more than ever a factor in the trade. New men and new money both have entered into its affairs and the effects of a fire in June, which considerably disturbed factory operations, have been overcome.

Of the new men who have become identified with the company, George C. Gordon, the cashier of a Brockport (N. Y.) bank, and a member of a wealthy family, has been elected treasurer, while James J. Joyce, one of the most widely known veterans of the trade, who for years was general manager of the American Locomotive Co.'s automobile department, has become general sales manager. Fred A. Law, another veteran, who was connected with the Columbia Motor Car Co. and other concerns, and who has a reputation as a designer and mechanical expert, has been engaged as designer and as superintendent of the Selden factory.

To reach the larger and more desirable class of trade, Fred A. Hoblitt, who previously was general superintendent of the American Locomotive Co. and who is president of the Rector Engineering Co., has been prevailed on to give part of his time to the Selden interests. He will visit the "big trade" with which he is so well acquainted.

While these accessions naturally will add to the aggressiveness of the Selden establishment, R. H. Salmons will continue to preside over it and hold the reins in his dual capacity as vice-president and general manager.

Factory Leased for White Star Truck.

For the purposes of truck manufacture, the White Star Motor and Engineering Co., of Brooklyn, N. Y., has leased the three-story brick structure at 18-22 Henry street, in that city, and as soon as extensive alterations are completed will seriously enter into the business in which it has been tentatively engaged in temporary quarters at 1380 Atlantic avenue. The company is composed of John T. Whalen, president; Robert Beutel, vice-president, and George Oterbein, secretary, and grew out of the success of a 1½ ton truck built for Whalen Bros., of which John T. Whalen is the head, and who has been engaged in the Brooklyn furniture trade for some thirty years. This truck will be reproduced by

the White Star company. It employs a two cylinder, two cycle, three port engine, 5 x 5 inches; three speed selective transmission, cone clutch and semi-elliptic springs.

Big Office Building for Johns-Manville.

When the palatial twelve-story building at 41st street and Madison avenue, New York City, which is in course of erection, is completed, in May next, it will be occupied wholly by the H. W. Johns-Manville Co., makers of the J-M asbestos brake lining and other specialties. The building will be of the early Italian Gothic style of architecture, the three lower stories being of limestone and the upper stories of gray-brown Roman brick and terra cotta. It will be styled the Johns-Manville Building and will have the unique distinction of being one of the few twelve-story structures to be entirely occupied by a manufacturing concern for office purposes only.

Changes Occur in Croxton Company.

H. A. Croxton having retired from the presidency and general management of the Croxton Motor Co., of Cleveland, Ohio, a general shift about of officials has occurred. J. P. Stoltz, former vice-president, has succeeded to the presidency; H. D. Michaels, former secretary and treasurer, has relinquished the secretaryship to F. H. Smith, but still retains the office of treasurer, and George S. Patterson, formerly a Rambler branch manager, has succeeded W. F. Melhuish as sales manager.

Marathon Going Into Motor Trucks.

Having decided to enlarge its sphere by engaging in the manufacture of commercial vehicles, the Southern Motor Works, of Nashville, Tenn., has increased its capital stock from \$400,000 to \$600,000 and changed its name to the Marathon Motor Works. Marathon is the name of the touring car which it has manufactured for several years on a limited scale, and which will be continued.

No Quorum for U. S. Motor Meeting.

The meeting of the board of directors of the United States Motor Co., which was called for Thursday last, 27th ult., did not occur, because of lack of a quorum. Among other things that were to have occurred was the election of George W. Perkins as a member of the finance committee. Probably no meeting will be held until September.

Holmes Becomes Clark-Carter Manager.

Fred Holmes, who resigned as general manager of the Jackson Automobile Co., of Jackson, Mich., on June 1, has become general manager of the Clark-Carter Automobile Co., in the same city. When he resigned, Holmes expected to take a long vacation, but the Clark-Carter people induced him to change his mind.

MIDGLEY TREAD DOES NOT INFRINGE

United States Rules Against Adams Patent—Also Discusses Application of "Bicycle Ideas" to Automobiles.

It required only about one week for Judge Platt, sitting in the United States Circuit Court for the District of Connecticut, to become convinced that the Midgley wire grip incorporated in the tread of the Hartford automobile tires is not an infringement of Patent No. 609,320, issued August 16, 1898, to Dr. Calvin T. Adams, of New York, covering "a vehicle tire," and more specifically a bicycle tire. Late last week he rendered a decision to this effect in the suit for infringement of the Adams patent brought by its owners, the Metallic Rubber Tire Co., of Jersey City, N. J., against the Hartford Rubber Works Co., of Hartford, Conn.

The case was somewhat unusual, in that before the patent was granted to Adams, he eliminated a claim he had made for a tire with wire interwoven in the tread, which, however, was substantially renewed in the suit which Judge Platt just has decided. The court's opinion is notable, also, in that it appears to indicate inventions relating to bicycles and which were conceived before automobiles were in mind, of which so many have been brought to bear on the automobile industry, are not likely to receive much weight at his hands. His opinion concerning the Adams patent is as follows:

This is the usual bill in equity, asking for injunction and accounting, based upon Letters Patent to Calvin T. Adams, No. 609,320, issued August 16, 1898, for a vehicle tire.

The defenses are invalidity, irregularity of issue, non-infringement and lack of equity.

The first thing to settle is, what the inventive concept of Adams was, and what he claimed under it. In discussing that we must not forget that the Adams concept was formed in 1895 when the bicycle was in vogue and the heavy motor car of today was a vague uncertainty. His mind was concerned with bicycles alone, and nothing else, except possibly tires of a similar character.

We must go to the file-wrapper to learn what he did. He wanted to show how the tires of bicycles and "other wheeled vehicles" (in which latter phrase he undoubtedly had in mind carriage wheels) could be so treated as to retain their resiliency and at the same time be prevented from slipping on smooth and wet roadways.

The yielding tires of bicycles had up to that time, he says, been provided with spikes extending well beyond the head, so as to penetrate and give a locking hold upon ice, but these could not be used on roadways without destroying the tire or making it hard work to propel the machine.

Such tires had also been provided with external metallic fittings to bear on the ground when the tire is compressed, but such fittings were too heavy, expensive and complicated.



His idea was to provide a tread for the yielding tire which would not add much to the weight or expense of the tire, could be easily applied, would last, would not slip on smooth or wet roadways, and would not "materially increase the labor of propulsion."

His way of doing it was to weave into the yielding material of the tread, wire which should appear every now and then flush with the surface, and at other points be embedded within the material of the tread, or to embed within the material of the tread studs of metal or other hard substance which should come up flush with the surface.

In this way he expected that the metal would get a grip on the roadway and prevent slipping, but at the same time the tread and metal would readily yield with the tire and permit the flexible material of the tread to act as a cushion.

He then proceeded to tell people how to carry his idea into practice. He made pictures of pneumatic bicycle tires embodying his invention, both on the surface and in cross sections.

His cross section, Fig. 2, shows the hard bearings C C made by weaving or stitching metallic wire through the tread in lines running lengthwise of the tread (as shown in Fig. 1, so that the wire is alternately flush with the surface and embedded within the material of the tread. He then explains that the wire being interwoven with the material of the tread, will remain securely therein after the exposed portion has worn off, and that the exposed ends will then act in the same way as the hard bearings. This is the nearest he comes to the idea of "cat's claws." He appears to have thought that some virtue would be left in his hard bearings, even after they were worn apart, but that was an incidental and not a substantive thought.

In his cross section, Fig. 3, he shows his hard bearings made by sticking metal studs into the yielding material of the tread, so that their heads would come flush with the roadway and act like the exposed portions of the metal wire in Fig. 2. (That hard bearing would, of course, always be ready for work, no matter how much the material of the tread should wear away, and he would not have to face the possibility of loose ends dangling about, which was very likely a comfort to his mind.)

He then makes three claims based upon what he thought he had invented.

1. "A yielding tread for a vehicle tire, having a peripheral succession of hard bearings embedded in the material of which the tread is composed and substantially flush with its surface."

2. "A vehicle tire treated in the same way, without a tread."

(Both of these claims count, of course, upon the metal studs, and are put first, although the specifications treat the subject in the reverse order.)

3. "A yielding tread for a vehicle tire, having metallic wire interwoven with the material of which the tread is composed so as to lie in part substantially flush with its surface."

There is nothing in the claim, it will be observed, covering the function of that portion of the wire lying flush with the surface after it has been worn away so as to leave exposed ends held in place by that portion of the woven wire which remains countersunk in the material of the tread.

These claims were rejected by the Examiner on a number of citations, and in December, 1895, Mr. Adams absolutely cut out any claim to his invention as respects the wire interwoven with the tread, and pro-

(Continued on page 406)

Muskogee, Okla.—Roberts Motor Car Co., under Oklahoma laws, with \$5,000 capital; to deal in motor vehicles. Corporators—A. B. Roberts, J. V. Thomas, E. J. Phelps, all of Muskogee.

Covington, Ind.—Auto Fast Delivery Co., under Indiana laws, with \$1,500 capital; to do an automobile transfer and livery business. Corporators—William E. Bilsland, M. Mayer, F. C. Allen.

Cincinnati, Ohio—Willys-Garford Sales Co., under Ohio laws, with \$10,000 capital; to deal in automobiles. Corporators—John N. Willys, G. W. Bennett, Walter Stewart, A. H. Smith, Tathbun Fuller.

Chicago, Ill.—Efficiency Electric Co., under Illinois laws, with \$100,000 capital; to manufacture electric batteries and electric supplies. Corporators—R. C. Carpenter, C. G. Johnson, W. J. Johnson.

New York City, N. Y.—United Garage Co., under Delaware laws, with \$100,000 capital; to operate a garage. Corporators—H. R. Shaw, G. F. Kinney, of New York City; B. W. King, of Brooklyn.

Indianapolis, Ind.—Indiana Die Casting Development Co., under Indiana law, with \$100,000 capital; to manufacture and sell die casting machines, etc. Corporators—E. E. Gates, J. L. Baker, W. P. Herod.

East Cleveland, Ohio—Windermere Garage Co., under Ohio laws, with \$5,000 capital; to operate a garage and salesroom. Corporators—W. H. Atkinson, M. J. Miller, K. F. Leet, O. F. Downes, R. A. Lang.

Boston, Mass.—Malley Motor Vehicle Co., under Massachusetts laws, with \$50,000 capital; to manufacture and deal in automobiles and other motor vehicles. Corporators—C. A. Malley, M. R. Hatch.

St. Louis, Mo.—Overland Automobile Co., under Missouri laws, with \$10,000 capital; to do general automobile business. Corporators—H. D. Condie, 98 shares; T. L. Housmann, C. P. Eberle, 1 share each.

Warrensburg, N. Y.—The International Fritchie Co., under New York laws, with \$500,000 capital; to manufacture motor vehicles, etc. Corporators—D. O'Connor, A. Sheard, H. A. Fluckiger, all of New York City.

Bridgeport, Conn.—Elm Auto Co., under Connecticut laws, with \$25,000 capital; to deal in automobiles and maintain a garage and automobile livery service. Corporators—F. L. Mills, Thomas Morrissey, J. L. Green.

Chase City, Va.—Swift Motor Car Co., under Virginia laws, with \$1,000 minimum, \$10,000 maximum capital; to do general automobile business. Corporators—R. L. Jeffreys, B. R. Roberts, W. D. Wildman,

A. J. Moore, J. W. Swift, Jr., all of Chase City.

Elmira, N. Y.—La France Garage Co., under New York laws, with \$30,000 capital; to operate a garage and deal in motor vehicles. Corporators—A. W. La France, C. T. La France, A. W. La France, Jr., all of Elmira.

Buffalo, N. Y.—Barrett Motor Car Co., under New York laws, with \$10,000 capital; to deal in automobiles. Corporators—Frank Barrett, Alexander G. Hoeffler, Edward J. Meyer, Alfred A. Berrick, John F. Berrick.

Dayton, Ohio—Cadillac Motor Co., under Ohio laws, with \$30,000 capital; to deal in automobiles and other motor vehicles. Corporators—William Stroop, H. C. Homing, L. G. Bawers, H. W. McCord, William M. Matthews.

Cleveland, Ohio—The A. A. Davis Motor Co., under Ohio laws, with \$10,000 capital; to deal in automobiles. Corporators—Charles A. Rolfe, F. H. Grace, George A. Gunderman, Charles O. Lemmon, J. H. Kirkpatrick.

Cincinnati, Ohio—Guarantee Automobile Co., under Ohio laws, with \$10,000 capital; to do general automobile business. Corporators—Joseph Berning, H. O. Wendel, Herman Kirschner, William H. Jones, George A. Berning.

Chicago, Ill.—Chicago Business Car Co., under Illinois laws, with \$10,000 capital; to manufacture and deal in automobiles, automobile parts and accessories. Corporators—James G. Cronkite, B. E. Harris, Marjorie Dean Cronkite.

New York City—Rotary Pump Transmission Co., under New York laws, with \$200,000 capital; to manufacture and deal in pumps and transmission systems. Corporators—C. Townsend, C. R. Hoffman, G. A. Burckhardt, all of New York City.

Woonsocket, R. I.—Woonsocket Automobile Co., under Rhode Island laws, with \$5,000 capital; to manufacture automobiles, motor trucks, carriages and kindred vehicles. Corporators—Frederick S. Blackall, Rollin E. Ballou, both of Woonsocket; Louis V. Hubbard, of Upper Montclair, N. J.; Gordon Gordon, of New York.

Increases of Capital and Change of Name.

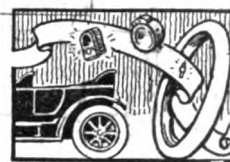
Green Island, N. Y.—Electric Omnibus Corporation, from \$1,000 to \$100,000.

Nashville, Tenn.—Southern Motor Works, from \$400,000 to \$600,000 and name changed to Marathon Motor Works.

Recent Losses by Fire.

Long Beach, Cal.—L. G. Stone's garage, West Tenth street, destroyed.

Louisville, Ky.—C. R. Mengel's garage in G street and one automobile destroyed. Loss, \$6,000. Caused by dropping a match in puddle of gasoline on floor.



Webb & Hogue are building a garage in Crockett, Texas.

J. H. Lee, of Corpus Christi, has opened a garage in Sinton, Texas.

A. H. Hoffman has opened a garage and repair shop at Red Hook, N. Y.

The Hartford Automobile & Boat Supply Co., of Hartford, Conn., has filed notice of dissolution.

M. J. Kane is building a one-story brick garage at West Fifth and Franklin streets, St. Paul, Minn. It will cost \$10,000.

A new repair shop has been opened at 1716 Grand avenue, Kansas City, Mo. Dienstberger and Hoch are the proprietors.

The agency for Auburn cars at Kansas City, Mo., has been taken over by a factory branch under the management of George F. Shoop.

W. H. Block has broken ground for a one-story garage on Bird street, near Vermont street, Indianapolis, Ind. When complete, it will cost \$3,000.

Mayor W. W. Hummel, of Gladstone, Mich., has purchased a large piece of property on Tenth street, Escanaba, Mich., and will erect a garage thereon.

H. M. Wolter has opened salesrooms in Folsom street, near Twentieth, San Francisco, Cal. He will handle the friction driven Lambert in the Pacific coast territory.

Charles Malley, formerly of the Boston branch of the Studebaker Corporation, has organized the Malley Motor Car Co., with headquarters in Boston, Mass. He has the agency for Warren-Detroit cars.

The Western Supply Co., of Omaha, Neb., has filed suit for \$1,655.30 against the Fremont Auto Co., of Fremont, Neb., alleged to be due on a bill for supplies furnished to the latter. J. M. Aaldrup is the proprietor of the defendant company.

Frederick C. Benson, a former member of the Benson & Hughes Motor Vehicle Co., of Rochester, N. Y., has filed a petition in voluntary bankruptcy for the purpose of getting rid of old debts contracted while connected with the company. His liabilities are given as \$3,000, while his assets are nil.

C. F. Stewart has been appointed general manager of the newly established Iowa state branch of the Studebaker Corporation, in Des Moines. The Van Vliet-Fletcher Automobile Co., which heretofore has been distributing E-M-F and Flanders cars in Des Moines, will be associated with the distributing branch.

Under the style Smith-Hoppe Co., a

new concern has "opened up" in Milwaukee, Wis., with J. A. Smith and A. C. Hoppe as the partners. A new garage is being built for them at the corner of Cass and Wisconsin streets, capable of storing forty-five cars. The company has the agency for Oldsmobiles and the Hupp-Yeats electric.

The Six Thirty Eight Tire & Vulcanizing Co., which recently was incorporated in Memphis, Tenn., has purchased the stock, fixtures and lease of the City Auto & Rubber Co., of the same city, and will continue the business at the old location, 22 South Fourth street. R. D. Foley, formerly owner of the Foley Automobile Co., is the general manager.

The Gibson Automobile Co. and the Fischer Automobile Co., both of Indianapolis, Ind., have been consolidated under the management of Cecil E. Gibson. The new company will occupy the Fisher building at Capitol avenue and Vermont street, while the former headquarters of the Gibson company on Massachusetts avenue will be retained as a branch store to handle accessories and sundries.

The Elm Auto Co., Bridgeport, Conn., incorporated last week with \$25,000 capital, has opened a garage on Elm street, near Harrison street. The building is of brick, three stories high and affords 14,000 square feet of floor space. It will shelter Mitchell, Pope-Hartford, Inter-State and E-M-F cars, as well as a taxicab and livery department. F. L. Mills is the president and general manager of the concern.

Consolidation has been effected between the C. T. Bartee Auto Co. and Jamison Brothers, both of Lafayette, Ind., under the style the Jamison Brothers Automobile Co., which will handle Chalmers and Ford cars. Clarence F. Jamison is the general manager, while C. T. Bartee will devote himself chiefly to Ford cars. A new garage capable of accommodating 200 cars is nearing completion and will be ready for occupancy during the first week of the current month.

Edward H. Jungclas, of the Jungclas Automobile Co., of Cincinnati, Ohio, has leased the corner lot on Mitchell avenue, near the Somersfield Apartments, where he will erect a salesroom and garage, at an estimated cost of \$15,000. He formerly was a partner with his brother, W. C. Jungclas, in the garage on Reading road and June street, but disposed of his interest last April. He will handle the Ohio electric for the present, but expects shortly to take on several gasoline cars.

Internal dissension in the Hupp Motor Sales Co., of Cleveland, Ohio, has led John

M. Rauch, the manager, to apply for the appointment of a receiver and for an order restraining the directors from canceling the company's contract with the Hupp Motor Car Co., of Detroit. Rauch alleges that the contract does not expire until September, 30, 1911, but that Fred Lane, president; A. H. Homan, treasurer, and John W. Peterson, one of the directors of the Sales company, have induced the Detroit manufacturers to declare it null and void.

Changes Among Prominent Tradesmen.

J. O. Wharton has been appointed district manager for the Willys-Overland Co., with headquarters in Dallas, Tex. Previously he was assistant branch manager of the Studebaker Bros. Co. of Texas.

Don C. McCord, former manager of the Marion Motor Car Sales Co., Indianapolis, Ind., has been made sales manager of the electric vehicle department of the Flanders Mfg. Co., of Pontiac, Mich. He assumed his new duties on Monday last.

Allen Kendall has been appointed eastern sales manager for Claire L. Barnes & Co., of Chicago and Detroit. Previously Kendall was sales manager for the Lumen Bearing Co., of Buffalo. Barnes & Co. have also appointed Walter Swain, for many years connected with the W. Bingham Co., of Cleveland, as their general representative for Ohio and Indiana.

F. L. Martin, who for the past three years has been secretary and sales manager for the Hartford Auto Parts Co., Hartford, Conn., has been made sales manager of the automobile axle department of the Sheldon Axle Company, Wilkes-Barre, Pa. W. J. Childs, the former sales manager, has resigned to become manager of the O. J. Childs Fire Extinguisher Co., Utica, N. Y.

E. H. Lowe, who organized the Fal Motor Co., of Chicago, and who since has been its secretary and general manager, has resigned those offices and retired from the active affairs of the company, in which, however, he retains a majority of the stock. W. B. Paulson succeeds him as secretary and E. H. Marhoefer, president of the company, will perform the duties of general manager also.

George H. Strout, for the past four years sales manager for the Apperson Bros. Automobile Co., of Kokomo, Ind., relinquished that position on the 1st inst., to become sales representative of the Grabowsky Power Wagon Co., of Detroit. He will make his headquarters in New York and will handle New York, New England, New Jersey, Pennsylvania, Delaware and the District of Columbia.

Mr. Manufacturer—All Deliveries of Remy Magnetos Positively Guaranteed

The Remy Electric Company is the world's largest institution devoted to the manufacture of magneto devices. This plant can furnish you larger quantities of magnetos on shorter notice than any firm in the world.

Have your dealers ever clamored for cars while you waited for magnetos?

Then you know what our guarantee means.

Many of the largest makers of motor cars have contracted with us for their 1912 ignition equipment.

The recent speed and endurance triumphs of cars equipped with Remy Magnetos have impressed prospective purchasers everywhere of the superiority of Remy Ignition. They realize that a magneto which gives perfect service under such exacting conditions will serve them best in everyday automobiling.

Remy Service pleases users of Remy devices everywhere. It is a valuable asset to dealer and manufacturer.

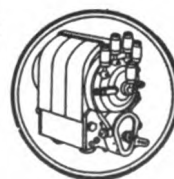
May We Serve You?

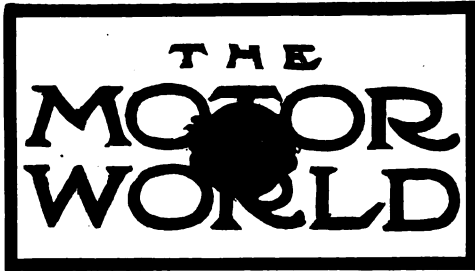
Remy Electric Company



Factories **Anderson, Indiana** Gen'l Offices

New York Boston Detroit Chicago Kansas City
San Francisco Indianapo'is
Minneapolis: Hollis Electric Co. Philadelphia: McCullough & Son
Denver: Auto Equipment Co.
Los Angeles: Auto Motor Equipment Co.





PUBLISHED EVERY THURSDAY BY

The Motor World Publishing Co.Joseph Goodman, President. R. G. Betts, Treasurer.
F. W. Roche, Secretary

154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
 Single Copies (Postage Paid) 10 Cents
 Foreign and Canadian Subscriptions \$3.00
 Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceeding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
 Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, AUGUST 3, 1911.

The Development of the Coupe.

Thus early it is made evident that the year 1912 will be characterized by a remarkable development of the inside-operated car, the coupe, in particular. The specimens which already have been brought to view are not only numerous, but without exception they are of strikingly attractive design and appearance, in fact, they incorporate more style and are suggestive of as much luxury as the limousine, which is too large and too ponderous to be of truly stylish exterior, however luxurious it may be within.

In the nature of things, the coupe is likely to cut into the demand for limousines, but the extent of the demand purely is problematical and its measure will be no less interesting than the coupe itself. Certainly, the car that promotes winter use is very much to be desired and is to be encouraged in every way possible, but whether the modern coupe proves to be

more than a town car remains to be seen. Essentially it is a town car and a car for use in inclement weather and, this being the case, it appears not to have occurred to all designers that unobstructed entry from the right hand side is highly desirable, if not absolutely necessary.

In many cities the law requires that vehicles always shall present their right hand sides to the curb when receiving and discharging passengers, which means that the car possessed of right hand control compels passengers to dodge or squirm around the steering wheel or walk into the street and enter from the left side. This sort of thing is bad enough in the case of touring cars designed for fair-weather use, but it will not add to the popularity of the inside-driven vehicle intended largely for the use of womankind during inclement weather.

Whether this factor will hasten the coming of left hand control is a pretty question, but at any rate, it is one that should not be permitted to escape the consideration of those who pin high faith on the future of the coupe; nor should they lose sight of the desirability of ample ventilation. A coupe can become a very "stuffy" vehicle on a hot day or on a muggy one, which makes it appear that a generous rear window will prove as grateful as windows in any other part of the car.

The Value of Agency Systems.

Few cars sell themselves, assertions to the contrary notwithstanding. Much talk is required to sell some of them; others sell readily enough on their merits and reputations, but, after all, the factor that decides the most thoughtful purchaser is not a car, but a man, and that man is the agent or dealer. Often it is not his argument that settles the matter, but the mere fact that he is on the ground. In other words, the thinking purchaser usually decides that an agent for the car he selects is a "handy man to have around the town." He can carry his troubles to him and always is sure of a helping hand.

It is the conscious or sub-conscious belief in what is called "service," and nothing better serves to illustrate the value of agents and the advantages of a well-developed agency system. The advantages recently were aptly remarked by a motorist to whom had come for advice regarding the purchase an old friend residing in a town far removed.

"Without hesitancy I advised him to purchase a car of the sort I was using," said this motorist in relating the instance. "It had given me splendid satisfaction, the makers were well established and the price was reasonable. My friend then informed me that there was no agent for the car in his home town or in its vicinity and I promptly retracted my advice. I counseled the purchase of a car that had a representative on the ground. Until that moment, however, I do not think I fully realized the value of an agent. I never had had occasion to think of it before."

Encouraging the Amateur Spirit.

Unless the American Automobile Association and the other sports-governing bodies are watchful the genuine sportsman—the amateur—the private owner—is likely to obtain a foothold in spite of them. The class for private owners which was included in the recent Wisconsin reliability contest is a small indication in that direction; the Prince Henry tour abroad is a very much larger one. In fact, the latter almost may be considered a protest against the trade-saturation of the sport. It was by far the most notable and most inspiring sporting event which ever has occurred.

Of course, the A. A. A. and its kindred organizations across the sea are doing nothing to discourage the growth of the amateur spirit, but they are doing nothing to encourage it. It may be that their machinery is so large and so ponderous that they are forced to woo the trade and its dollars, but whether or no this be the case it long has been a crying shame that they have failed to recognize that the only enduring sport is amateur sport.

As so often has been remarked, when trade attempts to make business of sport, it is only a matter of time before it abandons it. The shuffling incident to the revival of the Glidden tour and the failure of the trade to support that contest may do something to force home the truth on the A. A. A. For it began to look as if it must turn to the private owner as a matter of self-preservation, at least so far as its competition department is concerned; and it is devoutly to be hoped that the plain indication and the handwriting on the wall will not be permitted to go to waste. The private owner must be actively encouraged or the sport will fall on dreary days.

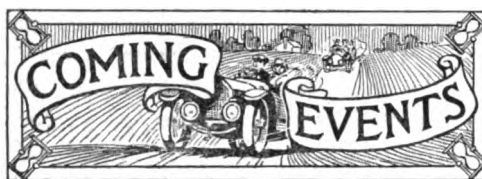
Racing aside, the A. A. A. should require, as the Motor World once before suggested,

that a class for private owners be included in all contests. It should require that the name of the driver and not merely of the car be given in each and every instance. In other words, it should encourage real sport and add to it that element of human interest which has been kept so far in the background. However good may be a car it is of small value unless its driver is of equal caliber. It is not proper to permit him to be effaced. Only half of the glory of any triumph belongs to the car. To refer to an entrant merely as "Speedfast No. 14," for instance, may be one way of obtaining publicity, but it is mighty poor sport and serves the sport no real good. It takes the human element out of it, and when the human element is gone little remains. Every man, however humble, should receive his due, and a sports-governing organization which by acts of omission or commission fails to give it to him is lax in its duty and merely trends to the undoing of the sport which it is supposed to direct and control.

The trade itself can well afford to encourage the amateur—the private owner—indeed, it is to its interest to do so. He constitutes their bulwark and his performance is of far more real value and influence than is the performance of any number of hired men. The fact should be plain to the trade, and since the A. A. A. leans so heavily on the Manufacturers' Contest Association and responds so readily to its suggestions and recommendations, the M. C. A. can perform a worthy stroke by conveying to the A. A. A. recommendations that will assist in the building up of the amateur spirit and in permitting the private owner to come into his own; indeed the M. C. A., the N. A. A. M., the Board of Trade and the other trade organizations can do much worse than draw on their respective exchequers for permanent or semi-permanent national trophies which will serve to bring the amateur into the open and to multiply his numbers.

One of the British trade journals assures its readers that "the magnitude of the Coronation motor parade simply 'knocked them' in New York." And it must be true, for fully ten New Yorkers were aware that there was such a thing as a "Coronation motor parade."

"Please resume sending the Motor World to me. I believe it has been dis-



August 3-4-5, Galveston, Tex.—Racemeet on Beach under auspices of Galveston Automobile Club.

August 5, Scranton, Pa.—Racemeet under management of E. A. Moross.

August 7, Chicago, Ill.—Chicago American's reliability run for commercial vehicles.

Aug. 8, St. Louis, Mo.—Reliability contest under auspices St. Louis Automobile Manufacturers and Dealers Association.

August 9, Augusta, Ga.—Augusta Automobile Club's hill climb.

August 12, Detroit, Mich.—Track race-meet, State fair grounds.

August 12, Philadelphia, Pa.—Quaker City Motor Club's annual reliability trial for pleasure cars.

Aug. 12, Worcester, Mass.—Worcester Automobile Club's sixth annual hill climb on Dead Horse Hill.

August 12, Baltimore, Md.—Racemeet under management of E. A. Moross.

Aug. 17, St. Louis, Mo.—Reliability contest under auspices Missouri Automobile Association.

August 25-26, Elgin, Ill.—Chicago Motor Club's national stock chassis road races.

Sept. 1, Oklahoma, Okla.—Reliability contest under auspices of the Daily Oklahoman.

Sept. 2-4, Brighton Beach, N. Y.—Racemeet under management of E. A. Moross.

Sept. 4, Denver, Col.—Denver Motor Club's racemeet on motordrome

September 4-5, Brighton Beach, N. Y.—Twenty-four hours race under management E. A. Moross.

Sept. 7-8, Philadelphia, Pa.—Philadelphia Auto Trade Association's racemeet.

Sept. 7-9, Hamline Track, Minn.—Minnesota State Automobile Association's racemeet.

Sept. 7-10, Buffalo, N. Y.—Reliability contest under auspices Automobile Club of Buffalo.

Sept. 9, Bologna, Italy—International road race for the Italian Grand Prix over the Bologna circuit.

Sept. 12-13, Grand Rapids, Mich.—Michigan State Automobile Association's racemeet.

Sept. 15, Knoxville, Tenn.—Track meet, Appalachian Exposition.

Sept. 16, Syracuse, N. Y.—National Circuit track meet, State Fair grounds.

Sept. 18-20, Chicago, Ill.—Reliability contest for motor trucks, under auspices of Chicago Motor Club.

Sept. 23, Lowell, Mass.—Road races under auspices of Lowell Automobile Club.

Sept. 23, Detroit, Mich.—State Automobile Association's racemeet.

Oct. 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers' Association's open air show.

Oct. 3-7, Danbury, Conn.—Track meet under auspices Danbury Agricultural Society.

October 7, Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

Oct. 9-13, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

Oct. 12-22, Berlin, Germany.—International automobile show in Exhibition Hall, Zoological Garden.

Oct. 13-14, Atlanta, Ga.—Racemeet under management H. C. George.

Oct. 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

Nov. 1, Waco, Texas—Racemeet under auspices Waco Automobile Club.

Nov. 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

Nov. 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

Nov. 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

Nov. 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

Nov. 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

Nov. 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

Nov. 30, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

Dec. 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

continued because of my failure to send renewal, which, I assure you, was an oversight. I would not knowingly be without a single number of your 'newsy' journal. For real news the Motor World leads. Put me down as a 99 year subscriber and send bill

annually. While I don't expect to patrol Broadway for all that period, when the change of address comes, I'll give you due notice, so that copies can be sent me by the 'swiftest air line.'—L. H. Perlman, New York City.

BURMAN LOSES HIS "MEAL TICKET"

Mishap Enables Knipper to Capture Brassard at Philadelphia—Ringler Scores Thrice—German's Mixed Luck.

Robert Burman, "speed king," not only went down to defeat at the Point Breeze track, Philadelphia, Pa., on Saturday last, 29th ult., but he also lost his "meal ticket," the Remy Brassard. It is "still in the fam-

ily," however, as William Knipper, who, like Burman, is a member of the Moross racing stable, gathered it in. The race was the feature event of the meet and Knipper's victory assures him of an income of \$75 per week while he holds the trophy. Burman held it four weeks. Although defeated, and solely because of a trifling mishap, Burman later had the satisfaction of lowering the track record for the mile, in the presence of Berna Oldfield. Burman's time was 58 $\frac{1}{2}$ seconds against Oldfield's 59 $\frac{3}{4}$ seconds. The lion's share of the honors, however, was carried away by Harvey Ringler, a local pilot, driving a Mercer, who won three events.

The occasion was the annual midsummer racemeet of the Quaker City Motor Club. It brought out a large crowd, too large, in fact, for the officials to handle. At times the spectators thronged the course and at one stage the mounted police had to be called on to clear the track. But one accident marred the meet. This occurred late in the afternoon, when Charles Wiggins, mechanic for Harry Baker, who drove a small Metz racer, was thrown from the car, when his machine crashed into a fence and was piled into by the following cars. His escape was marvelous, as he fell in front of an approaching machine, which ran over his right side. He was taken to the hospital, where it was later said his condition was not believed to be serious.

Herbert Richter, a German driver of note, made his first American appearance in a big Opel machine, and figured conspicuously at the meet. He won one ten mile

In the five mile free-for-all, for the Brassard trophy, there were but three starters—Burman in his big Benz; Knipper in a Mercedes, and Richter in the Opel, which only arrived in this country a few days previous to the meet. All got away together at the crack of the gun, but Burman

man, in a Buick, scored the first runaway in the race for cars of 161-230 cubic inches; Vincent Paula (Abbott-Detroit), was second, and Harry Taylor (Metz), was third. Harvey Ringler (Mercer), a local man, was the victor in the other light car race—for cars in the 231-300 inch class—and he left DuClosne (Staver-Chicago) far behind. Robert Morton, in a Kline car, was third. Ringler's time was 11:17. He also captured the ten mile handicap from Hugh Hughes (Mercer), no other contenders remaining after Baker (Metz) and Richter (Opel) had suffered the accident.

In the ten miles special, Ringler (Mercer), again distinguished himself. Hughes (Mercer), and DuClosne (Staver-Chicago) fought him hard, and for the better part of the ten miles it was any man's race, although Ringler took the lead at the start and never lost it.

Summary:

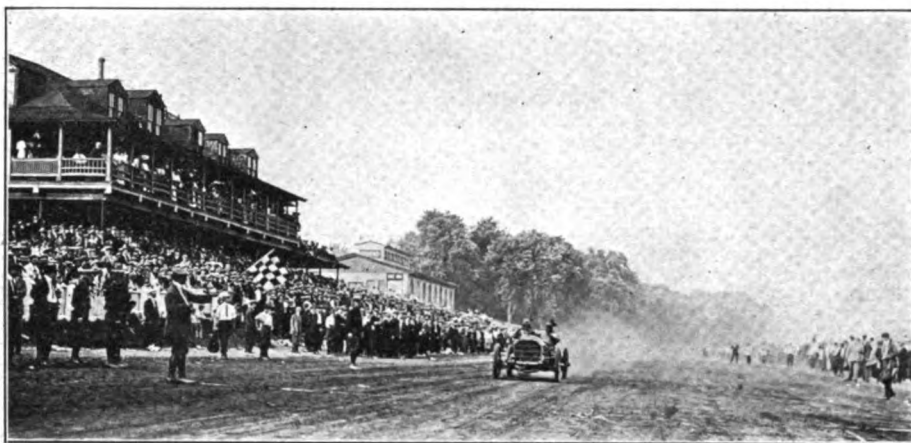
Ten miles, 161-230 cubic inches—Won by Joe Grennon, Buick; second, Vincent Paula, Abbott-Detroit; third, Harry Taylor, Metz. Time, 12:27.

Ten miles, 231-300 cubic inches—Won by Harvey Ringler, Mercer; second, DuClosne, Staver-Chicago; third, Robert Morton, Kline. Time, 11:17.

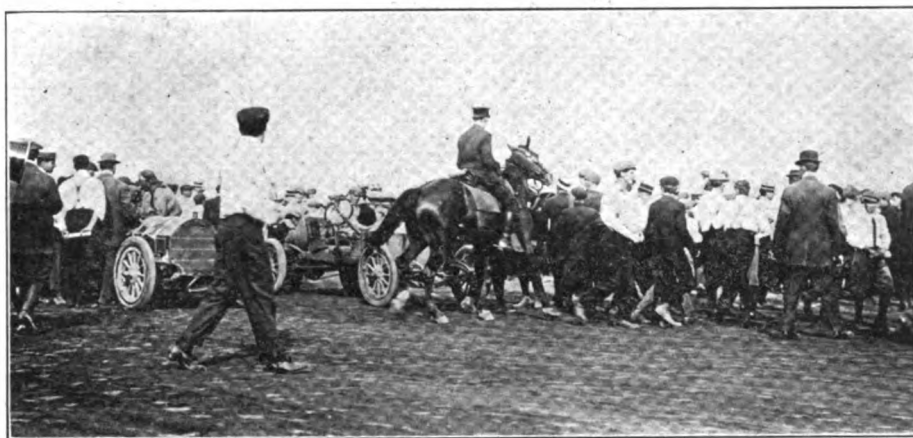
Ten miles, 301-450 cubic inches—Won by Herbert Richter, Opel; second, Harry Cobe, Jackson. Time, 12:19 $\frac{1}{2}$.

Ten miles, special—Won by Harvey Ringler, Mercer; second, Hugh Hughes, Mercer; third, DuClosne, Staver-Chicago; fourth, Grennon, Buick; fifth, Wenkler, Kline. Time, 11:39 $\frac{1}{2}$.

One mile time trial—Robert Burman,



RINGLER (MERCER) RUNNING AWAY WITH THE TEN MILES HANDICAP



WHEN THE MOUNTED POLICE HAD TO CLEAR THE TRACK

took the pole at the first turn and held his lead until the fourth mile, when a broken rocker-arm, which prevented the flow of gas, put him out of the running. Knipper then assumed the leadership and finished nearly a quarter of a mile ahead of the man from Germany, in 5:34 $\frac{1}{2}$.

The first two races of the day were uneventful, the winner going to the front at the crack of the gun and remaining there, winning in each case by at least a half a mile. Joe Grennon, mechanic for Bur-

time, 58 $\frac{1}{2}$ seconds. Previous track record, 59 $\frac{3}{4}$ seconds.

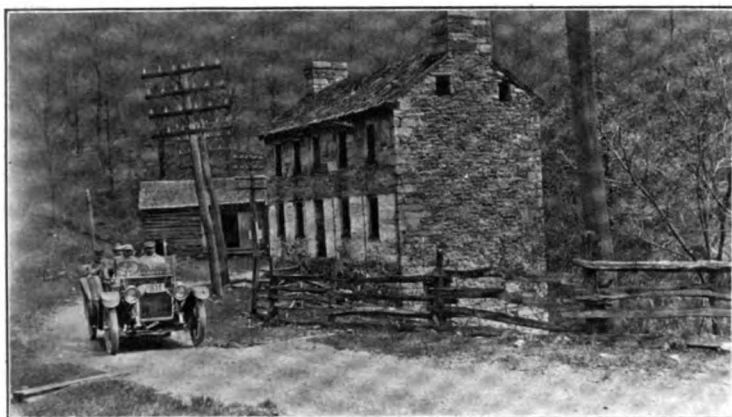
Five miles, free-for-all, for Remy Brassard—Won by Knipper, Mercedes; second, Richter, Opel. Time, 5:34 $\frac{1}{2}$.

Ten miles, handicap, open—Won by Harvey Ringler, Mercer; with handicap of 30 seconds. Time, 10:49. Second, Hugh Hughes, Mercer, scratch. Time, 10:39 $\frac{1}{2}$.

Twenty-five miles, free-for-all—Won by Hugh Hughes, Mercer; second, Harvey Ringler, Mercer. Time, 27:24 $\frac{1}{2}$.

THE MOTOR WORLD

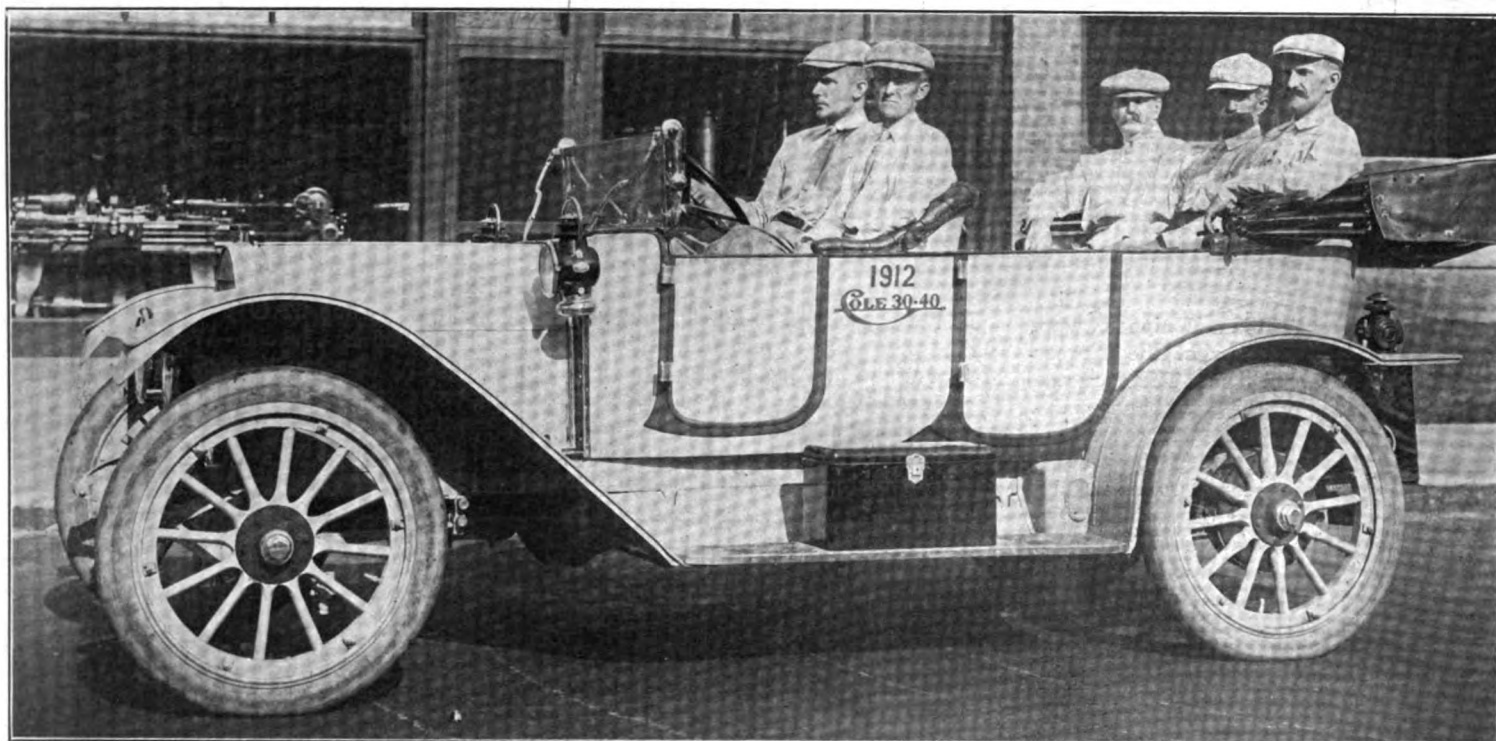
MOTORISTS AND MOTOR CARS THAT FIGURE IN UNUSUAL SITUATIONS



Testing the New Stearns-Knight Model—In the Mountains of Pennsylvania with a Tavern Built in 1794 for a Background.



Testing the New Stearns-Knight Model—Rough Uphill Going in the Wilds of the Alleghenies, Where Grades are Many and Steep.



Reunion of the Five Henderson Brothers, Now En Route from Indianapolis to the White Mountains in New Hampshire. J. H. comes from Arizona; F. R. from Oklahoma; G. C. from Oregon, and R. P. (at wheel) and C. P. (beside him) from Indianapolis, C. P. being general manager of the Henderson Motor Sales Co., the Cole car distributors.



New Jersey Enterprise Far Afield—An Asbury Park Garageman Plants His Mile Post Near Palm Beach, Fla., Nearly 1,500 Miles from Home.



An Incident of a Globe-Girdling Journey—The Hupmobile Pilot Astonishing the Natives in the Philippines by a Dash Through Mud Puddles.

BUT ONE FAILS TO REACH HELENA

Eighteen of Nineteen Starters Survive Real Reliability Contest—Five Clean Scores—Incidents of Closing Days.

Helena, Mont., July 30.—Covered with mud and filled with enthusiastic motorists, 18 of the 19 automobiles which started from Minneapolis on the 20th inst., in the third annual reliability run of the Minnesota State Automobile Association rolled into Helena, Mont., on the evening of Friday, the 28th, under their own power, the 19th car, the Amplex, driven by Philip Wiseman, also rolled in, but it was aboard the Great Northern "automobile train," having been withdrawn by its owner the previous day.

That the tour was not a "joy ride" in any sense of the word is evidenced by the fact that but five of those who started were able to keep their slates clean to the end of the trip. Of the remaining 13, two, F. A. Witt's Flanders and Wiseman's Amplex, were withdrawn, though both finished the run, the Amplex, as noted, aboard the "automobile train," and the Flanders under the guiding hand of its driver, and 11 finished with penalties ranging from three to 461 points. The complete scores are as follows:

Touring Car Class—Registered Division.

Driver and Car.	Score.
Bohn Fawkes, Marmon.....	995
A. N. Smith, Abbott-Detroit.....	994
M. J. Armstrong, Colby.....	992
O. A. Palmlund, Halladay.....	956
J. H. Prior, Stoddard-Dayton.....	825
P. Wiseman, Amplex.....	Withdrawn
Touring Car Class—Unregistered Division.	
C. L. Bonwell, Kissel.....	Perfect
Chris. Rice, Kissel.....	Perfect
J. Sackow, Pierce-Arrow.....	Perfect
W. Stork, Packard.....	Perfect

Runabout Class.

B. W. Scott, Flanders.....	Perfect
George Herron, Flanders.....	Perfect
B. T. Hoyt, Cole "40".....	992
A. J. Rose, Cole "30".....	539
E. B. Stimson, Hupmobile.....	990
O. W. Close, Maxwell.....	858
A. L. McNurlen, Petrel.....	782
J. E. Dougherty, Krit.....	1046
F. A. Witt, Flanders.....	Withdrawn

Despite the assertions of Reuben Warner, Jr., president of the Minnesota State Automobile Association, to the effect that if either of the two Kissel entries, or the Pierce-Arrow entry, all of which were without the necessary A. A. A. registration certificates necessary to make them eligible as stock cars, finished with scores which entitled them to prizes, he, Warner, would see that they got them, certificates or no certificates, they were overlooked when the time came to hand out the prizes, and as

there have been no protests up to date it is unlikely that the prizes will be taken away from those to whom they were awarded.

To Bohn Fawkes, Marmon pilot, went the coveted Minneapolis Journal trophy for the driver of a touring car who finished with the best score. Fawkes's total debit was five points. The Reuben Warner, Jr., trophy, which was the second prize for cars in the touring car class, was awarded to M. J. Armstrong, who drove a Colby. In the runabout class the two Flanders cars, driven by B. W. Scott and George Herron, both finished with perfect scores, and the drivers were awarded the Phillips trophy and the Jesse Gregg trophy, respectively.

Almost perfect weather conditions prevailed on Wednesday, 26th ult., when the tourists left Culbertson, Mont., on the last leg but two of their long journey. In the morning the weather was slightly cloudy, but in the afternoon nothing interfered with the bright glare which finished the work the wind and heat had been doing in taking off the rest of the cuticle from the faces of the tourists. The route from Culbertson to Malta, which was designated as the night control, was long and hard—183 miles—across the prairie, with nothing but sage brush, cactus fields, prairie dog villages and millions of glacial drift pebbles to cheer or harass the motorists. Nevertheless, little or no trouble outside of punctures and blow-outs was encountered. Though a boxing match, as part of the evening's celebration, was put on at Malta for the edification of the tired travelers, some of the elite of that Montana town arose in wrath at the degradation, and it was stopped in the sixth round of a scheduled ten-round mill.

Thursday, 27th ult., saw the procession well on its way toward Great Falls, the next to the last leg of the journey, and the longest single day's run of the tour. It is 210.6 miles from Malta to Great Falls, Mont. Rain in the form of a veritable cloudburst, which came late in the evening of the previous day, put the roads in horrible condition, and as a result trouble commenced early. Slipping and sliding the motorists wended their way toward their distant goal, and the number of punctures and other tire troubles which were sustained was almost appalling. Smith, in the Abbott-Detroit, had no less than 14 blow-outs, and some of the other drivers suffered almost as badly.

The Flanders, driven by F. A. Witt, broke a valve during the day, and though it continued with "the bunch," and under its own "steam," it was withdrawn. Wiseman's Amplex also was withdrawn, trouble having developed with the oiling system, and it was placed on one of the special cars in the "automobile train" to continue its journey in silence. The reason for the exceptionally long day's run was to avoid the necessity for going through a lot of mud, but as the route as laid out led over a lot of prairie without the least semblance

of a road and was extremely rough, it was the opinion of not a few that if the route had led through the mud, and thereby been 30 miles shorter, there would have been fewer broken parts and more clean scores.

O. A. Palmlund's Halladay car, which acted as the pacemaker and carried the confetti, broke a hub casting, and its burden of pilot and confetti were transferred to Armstrong's Colby. Later, tire trouble necessitated a further shift of the pilot and his paraphernalia to the car of a non-contestant. The Halladay was put in shape in a little over three hours and continued the journey.

The last day of the tour was at once the shortest and the most pleasurable. Leaving Great Falls at 10 in the morning the tourists traveled an easy 110 miles, mostly over good roads, through picturesque canyons and over the mountains of the Prickly Pear district. Prairie dogs were the chief source of entertainment in the low lands. The motorists passed through one "village" which was almost a mile long, both sides of the road being lined with the little rat-like animals and their associates, the little owls. The rattlesnakes, which generally are to be found in company with the prairie dogs, failed to put in an appearance.

Not a single mishap marred the pleasures of the last day, and when the tired and dusty tourists checked in in front of the Broadwater Hotel at Helena no additional penalties had been charged. Stimson's Hupmobile had two points more than it had when it left Great Falls, but these were earned on the previous day, the cause being the taking on of water outside of control.

Practically every one in Helena who was able to be up and about gathered in front of the hotel as the checking-in process was going on, and gave the visitors a rousing welcome. Later, there was a banquet in their honor and speeches and other things which go to make up the celebration which generally is accorded a body of touring motorists on the completion of a long tour. Louis W. Hill, president of the Great Northern Railway, and his special train left for home next morning and carried many of the tourists and their cars. Others preferred to stay at Helena for a time, and still others started on supplementary tours through the Yellowstone Park.

Not all of the prizes went to the contestants. For the best roads which were encountered in the State of Montana, Lewis and Clark County was awarded the Louis W. Hill trophy which, having been won twice, becomes the permanent property of that county. Grand Forks County, which is in North Dakota, received the Sullwood trophy for the best roads in that state, and this trophy also now will remain with the present holders. The trophy put up by the Devils Lake Commercial Club for the best roads westward from that city to the state line of North Dakota, went to Ramsey County.

GLIDDEN TOUR TO GO TO FLORIDA

Canadian "Resurrection" Failing, Southerners Prevail—Easy Conditions, but Cash Prizes Will Create Many "Pros."

That big "if" which entered into the proposed resurrection of the Glidden tour "some time in September" proved almost so large as to be overpowering. The "some time in September" was to have been changed to something more definite—if 30 entries were received by Tuesday last, 1st inst. They failed to appear, however, and as a result the so-called "reciprocity tour" from Washington, D. C., to Ottawa, Can., is off for all time. Instead, the time of the tour has been changed to "some time in October," and it will go South, not North, and though it still will be a Glidden tour in name, the resemblance will end there.

It is to be a Grade IV. contest, which, according to the American Automobile Association rules governing reliability runs, means that penalties will be imposed for lateness at controls only, the cars carrying no observers, and the course will be over the route of the proposed National highway between New York and Jacksonville, Fla., via Atlanta, Ga. A big bid will be made for private owners, although on the surface the tour is open to professional drivers only as the promoters wittingly or unwittingly have offered as an additional "inducement" "a \$200 cash prize for the best performance in each of the seven price divisions." Inasmuch as the rules of the A. A. A. state that an amateur is "a man who has * * * never competed for a cash prize," the tour is likely to produce a lot of professionals, whether or no.

It has been known for some time that the South wanted the Glidden, even after the route from Washington to Ottawa had been laid out, and arrangements for the trip Canadaward made, and the present plan to journey southward scarcely is a surprise. The decision was reached after a conference yesterday (Wednesday) between Chairman Butler of the Contest Board of the A. A. A. and representatives from the Atlanta Chamber of Commerce and the Jacksonville Board of Trade, and though the impetus which will be given to good roads progress in the South and the desirability of going in that direction rather than Northward at that time of the year are given as the reasons for the change of route it is probable that the principal reason for not abandoning the whole project was, to quote an official of the three A's, "that the American Automobile Association was desirous of running some sort of a tour, Glidden or otherwise, in order to recoup its losses sustained in preparing for the Glidden as originally scheduled."

Be it said to its credit, however, that the new plan under which the resurrected Glid-

den will be run really comes nearer to the original intention of the donor of the trophy than ever before, in that the tour was and is intended primarily to interest the private owner rather than the manufacturer. The entry fee has been placed at \$25, which is just \$475 less than has been charged in years gone by, and the owner of any stock car is eligible to enter.

Shrinkage of 10,000 Cars in Iowa.

That the various "estimates" of the number of automobiles running on American roads, which have appeared from time to time in the daily press and also in some of the more gullible trade journals, have been taken far too high and should be reduced by at least 30 per cent, again has been made evident by the recent experience of the state authorities of Iowa. Like many other states, Iowa this year passed a law providing for annual registration of its motor vehicles, and ordered 30,000 number plates for distribution to the supposed 30,000 automobile owners. But when it came to the distribution it was found that only 16,400, or barely more than one-half, were required; and even allowing for the coming additions during the remainder of the year it is not thought that more than 20,000 plates will be needed. The state of Iowa alone, therefore, registers a loss of fully 10,000 automobiles from the "estimated" number, and as nearly all the other states have had similar experiences—or are due to have them as soon as they start the system of annual registration—the 500,000 automobiles said to be running in this country will have to be brought down to about 350,000, which is probably far nearer the actual number than the half-million—although it may not sound anywhere near as important.

Ten Days' Chicago-Detroit Truck Test.

According to present indications at least 40 commercial vehicles will start from Chicago on Monday next, 7th inst., in a reliability run, which embraces 750 miles of all kinds of city and country roads between that city and Detroit, Mich., and return. That number of entries has been received for the event, which is being promoted in blanket by Hearst's Chicago American and in specific by the Chicago Automobile Club and the Wolverine Automobile Club of Detroit. The purpose of the run is to determine the cost per ton mile of transporting goods by motor truck, and all of the contesting trucks will be required to carry loads up to their catalogued capacity, either in bona fide merchandise or in sand ballast, entrants having the option of carrying either. Ten days will be required to make the run, thereby allowing for a daily average of 75 miles, with stops in all of the principal cities and towns en route. South Bend, Fort Wayne, Logansport, Lafayette, Lima, Toledo and Battle Creek are among the principal cities which will be visited on the route.

TWO NATIONS EXCHANGE PRIZES

England Wins Prince Henry's Trophy, But British and German Rulers Render Honors Easy—To Repeat Contest.

As had been predicted after the loss of De la Croix's car from the German contingent, caused by its running into a farm wagon at high speed and entailing a debit of 450 points, the British team was awarded the big ivory trophy, presented by Prince Henry of Prussia to the winner of the international tour that bore his name.

With impressive ceremonies, during the banquet at the R. A. C. on July 20th, the statuette was handed over by the Prince to the Duke of Teck, president of the Royal Automobile Club of Great Britain, which organization will hold it for a period of one year, when it will again be fought for in an international contest over the roads of at least three countries, Germany, Austria and Italy, probably extending even into Hungary and Russia.

In order that every one might return satisfied to his home, four other cups were awarded. A handsome silver trophy, presented by the Emperor of Germany, going to the Royal Automobile Club for "keeps"; another silver cup, offered by King George of England, was carried away by the Kaiserlicher Automobil Club, also as a permanent souvenir; a third cup, given by the German Empress for the handsomest British car, went to the Rolls-Royce of Mr. Clark Neill, while the fourth prize, tendered by the British Queen to the most elegant German car, was given to the Opel, driven by Landrat von Marx. Prince Henry's own Benz gave the Opel a close race for the latter award, as far as beauty of outline and equipment was concerned, but had to be satisfied with "creditable mention."

Little of unusual incident occurred on the last four days of the tour on English soil. The reception of the tourists by the populace was extremely cordial throughout, no accidents of serious nature were recorded, and the whole tour more and more took on the form of a triumphal march, with enthusiasm and fraternization banquets punctuating every stopping place, the presence of so many real sportsmen and the entire absence of professional chauffeurs and trade and advertising features marking an agreeable innovation.

In conformity with the rules no official penalization figures have been given out, nor has the total number of points of the winning team been published.

Lindsay Heads New Club in Texas.

Twenty motorists of Denison, Texas, have organized the Denison Automobile Club, with the following officers: President, B. J. Lindsay; secretary, William Esler; treasurer, H. E. Pearce.

NATIVE GETS SOME OF THE GLORY

Indianapolis Cracks "Invade" Cincinnati's Hill Climb and Gather Spoils—Radina Keeps One Prize at Home.

The drivers of National cars had a gala day on Saturday last, 29th ult., at the Cincinnati (Ohio) Automobile Dealers' Association's hill climb. They were first in two out of the eight events and second in three more. But they were not quite the whole show, however, as Joe Dawson in his Marmon and F. E. Radina, a local driver, who drove a "home-made" Cino, each shared the spotlight. In fact, Radina turned up the real surprise of the day—despite the fact that Wilcox, who drove a National, set up a new record of 25½ seconds for the course—when he beat Aitken in his National by almost three seconds in a free-for-all in which the cars were loaded with four passengers.

Stanley avenue, which is in the East end of the city, was the hill on which the contests were held; it measures just 270 feet short of half a mile and the average grade is 11 per cent. In preparation for the meet, heavy wire cables were fastened at the sides of the course and spectators were given to understand that they passed the ropes at their peril. Consequently the course was kept unusually clear and there was not even the semblance of an accident, though the crowd which gathered was the largest which has turned out in some time.

Following the usual custom, the curtain raiser was for cars in the "baby class," that is to say, for cars having less than 161 cubic inches piston displacement. E. Stone made the ascent in an Empire "20" in 51½ seconds, winning the event, with L. H. Sacket (Flanders "20") second in 58½. H. Bauer, in an Oakland, got up the hill in 40.2 seconds in the next larger class, but the best his only competitor, W. Hambly (Elmore), could do was 48 flat. After the next event, which was won by Dawson, with Raimey in a Cino second, everything except an event for club members and the free-for-all, in which the cars were required to carry four passengers, both of which went to Radina, was carried off by National pilots, Aitken getting the 301-450 class and Wilcox getting the 451-600 class and the "grand free-for-all." The summary:

Class C, nonstock, 160 cubic inches and under—Won by E. Stone, Empire, time 0:51½; second, L. H. Sacket, Flanders, time 0:58½.

Class C, nonstock, 161 to 230 cubic inches—Won by H. Bauer, Oakland, time 0:40.2; second, W. Hambly, Elmore, time 0:48 flat.

Class C, nonstock, 231 to 300 cubic inches—Won by Joe Dawson, Marmon, time 0:28½; second, J. Raimey, Cino, time 0:32 flat.

Class C, nonstock, 301 to 450 cubic inches—Won by J. Aitken, National, time 0:29½; second, Joe Dawson, Marmon, time 0:30 flat.

Class C, nonstock, 451 to 600 cubic inches—Won by H. Wilcox, National, time 0:25½; second, H. C. Dixon, Matheson, time 0:39½.

For Cincinnati Automobile Club members only, owners driving and cars carrying four passengers—Won by F. E. Radina, Cino, time 0:38½; second, Charles Schier, National, time 0:40½.

Free-for-all for cars with bodies and fenders and carrying four passengers—Won by F. E. Radina, Cino, time 0:36½; second, J. Aitken, National, time 0:39½.

Grand free-for-all—Won by H. Wilcox, National, time 0:25½; second, J. Aitken, National, time 0:28½.

One Way to Solve Tail Lamp Problem.

After experiencing endless annoyance through the carelessness of cyclists when riding at night, the Automobile Association and Motor Union, of Great Britain, have decided to distribute broadcast ten thousand tail "lights" of the type which consists of a small mirror covered by a ruby lens. When a cycle equipped with one of the devices is approached from the rear by a car, the light from the headlights is reflected in a red glow, like that of a ruby lantern. By making an extensive free distribution of the signals, it is hoped that their adaption may become general and night driving thereby rendered considerably safer. The idea originally was conceived by a local club in an English town, which presented to the municipality a number of the "lights" for use not merely on bicycles but on horse-drawn vehicles, as well.

Alco Organizes a Racing Team.

The Alco racing stable, which formerly comprised a single car, "old No. 18," with which Harry Grant twice won the Vanderbilt cup, has been enlarged, and for 1912, at least, will include two more cars, which will be driven by Harry Hartman and Frank H. Lee, the latter being Grant's erstwhile mechanic. It will be the first time the American Locomotive Co. has gone into racing in the true sense of the word. One of the three Alcos at least will be seen in every important event to be held. The first appearance of the triumvirate will be at the stock chassis road championships at Elgin, Ill., on August 25 and 26.

Amery Motorists Get Together.

The motorists of Amery, which is in Wisconsin, have formed the Amery Automobile Club. The officers for the ensuing year are: President, H. B. Pennington; vice-president, H. B. Commett; secretary and treasurer, George W. Miller; directors, E. J. Schneider, J. G. Burman and W. T. Kennedy.

MINISTER PROMOTES A RACEMEET

Toronto's "Athletic Parson" Adopts New Means of Raising Church Funds—Mixes Dog Races and Motor Contests.

The Rev. J. D. Morrow, who hails from Toronto, which is across the border in Canada, is affectionately styled the "athletic parson" by his large flock, the reason for the appellation being his love for athletics and that he occasionally promotes contests of various sorts, and just as often they are complete successes, at least from the point of view of the treasurer of the Dale Presbyterian church, whose coffers always are replenished by one of "Morrow's meets," as they have grown to be known. On Saturday last, 29th ult., he fathered his latest venture, the site being the half-mile oval at the Toronto Exhibition grounds, and though the program included such novelties as a baby show and a whippet race, the principal interest centered in the automobile contests.

Sandwiched between bicycle races, motorcycle races and the dog race, were three events for automobiles. Two of them were at five miles and were restricted to 20 horsepower cars, and the third was open to all, the drivers being required to make one circuit of the course and dodge eight barrels en route. Morrison, at the wheel of a Hupmobile, proved best in the first five miles struggle, and Ricketson, who had the mount on an Overland, was second, the winner's time being 7:42. Ricketson also was second in the other five miles event, Saurenson in a Ford nosing him out for first honors almost at the post. Saurenson's time was 7:14½. McDonald, guiding a Ford, was the cleverest dodger in the last event and he carefully missed all the barrels and completed the circuit in 1:48½. Morrison, winner of the first race, was second in his Hupmobile. The summary:

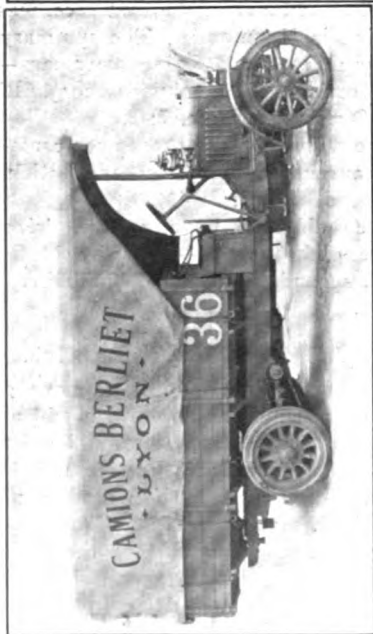
Five miles, for 20 horsepower cars—Won by Morrison, Hupmobile; second, Ricketson, Overland. Time, 7:42.

Five miles, for 20 horsepower cars—Won by Saurenson, Ford; second, Ricketson, Overland. Time, 7:14½.

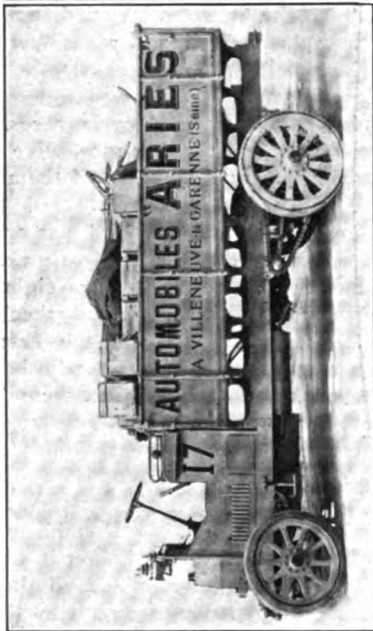
One half mile novelty race, drivers to dodge eight barrels—Won by McDonald, Ford; second, Morrison, Hupmobile. Time, 1:48½.

Sac City Now Has a Club.

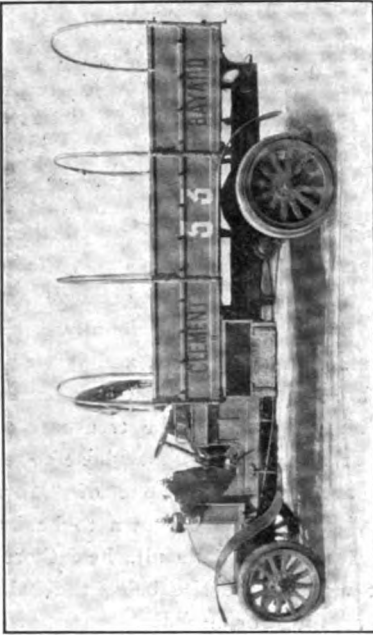
Sac City (Iowa) motorists have organized an automobile club which will affiliate with the Iowa State Automobile Association. The officers are: President, J. J. Harter; vice-president, B. F. Holmberg; secretary, J. R. Slacks; treasurer, George B. Perkins; executive committee: the president, the secretary, Ira Conger, Cleve Pilcher and F. S. Needham; delegate to the state association, Charles L. Early.



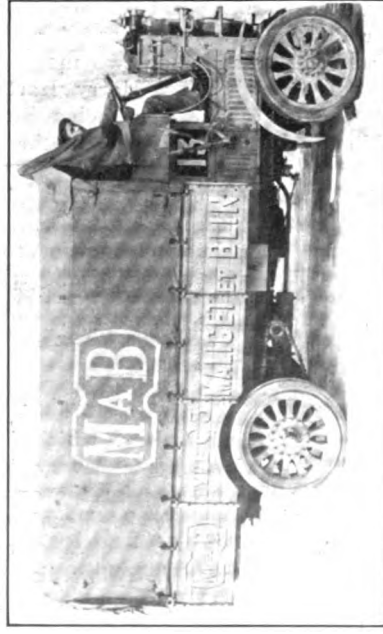
Berliet Camion of the Motor-in-Front Type. Note that Load is Concentrated on Rear Axle.



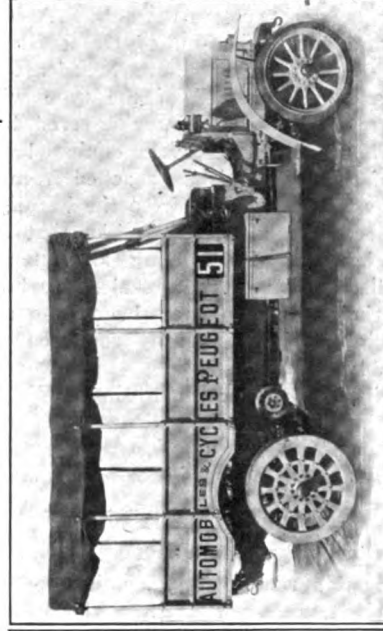
Aries Camion Illustrating Prevailing Practice of Elevating Load Platform to Gain Width and Wheel Clearance.



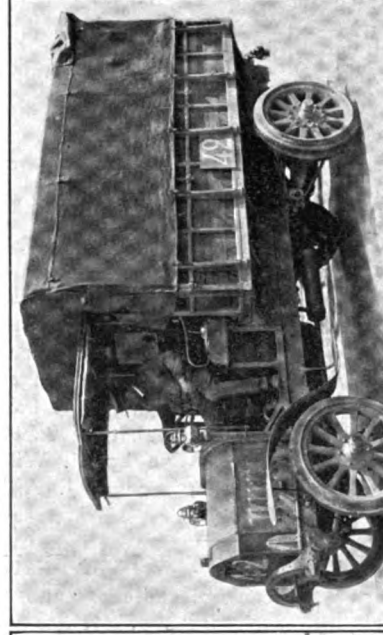
Clement Camion Which Employs Renault Type Power Plant, Affording Engine Accessibility and Radiator Protection.



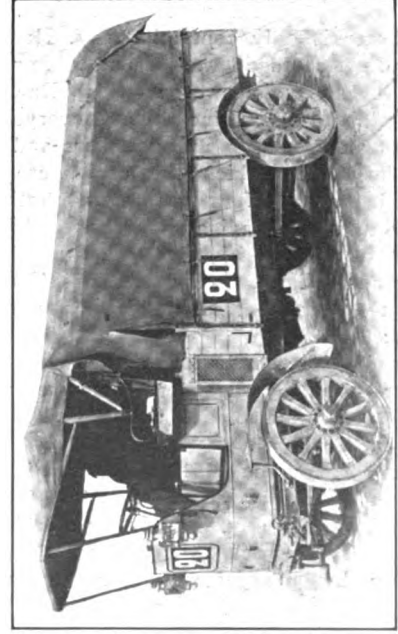
Malicet et Blin Heavy Truck. Note Very Short Engine Space, Low Load Platform and Wheel Housing.



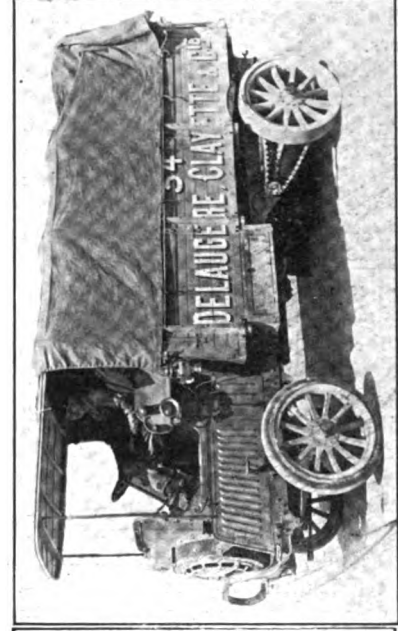
Peugeot Camion Showing Peculiar Body Construction with Wheel Housings. High Clearance Necessitated by Steel Rear Tires.



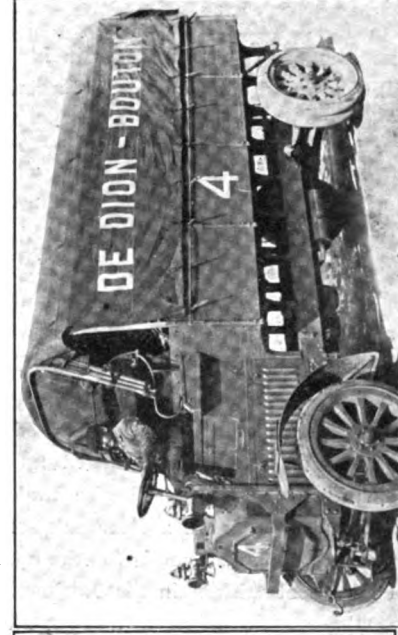
Vermoral Camion with Elevated Body. Note Frame Construction to Protect Radiator and Clear Starting Crank.



New Renault Heavy Duty Truck with Driver's Seat Over Motor. It is Shod with Steel Tires.



Delaunay Heavy Truck with Turbine Fan and Special Radiator Construction. Steel Tires Support the Rear Axle.



New DeDion Heavy Truck with Motor Under Seat. To be Tested in New York Bus Service.

FRENCH TRUCKS TRY FOR SUBSIDIES

Ministry of War Now Putting Them Through Month's Test — Fourteen Vehicles Fail to Survive First Half.

Fifteen manufacturers of motor trucks are represented in French military subsidy road trials, which at present are being held under the management of the French Ministry of War. The trials began on July 15

ble of going through the heavy work without serious mishaps.

Fifty-eight cars, affording a great study in contrasts, were presented to the authorities, were examined and marked and sealed by officers, and then dispatched on long journeys, loaded to capacity with stores and ballast. Arrived at their destination other officers would examine the seals, make reports of the time, character of roads covered and condition of the tires, radiators, etc., and then send them back to the orig-

to details which characterized the examination are suggested by the accompanying illustrations. The tire equipment, in particular, will be watched closely.

The severe demands caused the withdrawal of several of the contesting trucks in the first few days, but 44 or them have surmounted all obstacles which the first half of the contest presented, and are giving a splendid account of themselves. Those who have qualified so far are: 4 Saurers, 4 Peugeots, 6 Berliets, 4 Delahayes, 4



GENERAL VIEW OF FRENCH TRUCK TRIALS UNDER THE AUSPICES OF THE MINISTRY OF WAR

and will continue until August 13. The purpose of the tests is to fix the amounts of subsidy given to certain manufacturers whose trucks prove serviceable and capa-

ble of going through the heavy work without serious mishaps. Day after day, for four weeks, the trucks have to go over good and bad roads, and in some cases even across country. The thoroughness and attention

to details which characterized the examination are suggested by the accompanying illustrations. The tire equipment, in particular, will be watched closely. The severe demands caused the withdrawal of several of the contesting trucks in the first few days, but 44 or them have surmounted all obstacles which the first half of the contest presented, and are giving a splendid account of themselves. Those who have qualified so far are: 4 Saurers, 4 Peugeots, 6 Berliets, 4 Delahayes, 4



READY MEANS OF FILLING FUEL TANKS



MARKING THE PARTS FOR IDENTIFICATION

IMPROVEMENT OF THE SPARK PLUG

It Has Reached Such a State That Further Betterment Seems Improbable—Eccentricities of Early Plugs.

Discovering what he is pleased to term a "lull" in the influx of spark plug and other ignition devices, a well-known British authority has been moved to speculate as to the cause of the apparent lack of activity in this formerly seething pool of development, ultimately arriving at the conclusion that the original shortcomings with spark plugs in particular arose not so much from inherent structural faults as from external frailty coupled with troubles having their seat in other portions of the engine.

"It is now some time since the lull was started," continues the authority in question, who is none other than Mervyn O'Gorman, a familiar contributor to the motoring press, "and the reason for this stoppage and for the previous plenitude of patents in this branch is worth some consideration.

"In an automobile competition several years ago the mechanic in charge of a certain car under observation actually changed 31 sparking plugs in a run of 100 miles, while on another car the plugs, which emanated from the same factory, were not exchanged for those originally in the engine. The majority of competitors, however, replaced several plugs, as, indeed, every motorist did in those days. Then, as now, almost any sparking plug which had worked for an hour at full power would work for an almost indefinite period if only the distance between the points was adjusted at long intervals, in order to compensate the slight burning away due to the temperature of the metal. When, however, the sparking plug hole was the only means whereby it was possible to make an inspection, to examine valves, to inject petrol, and to observe the state of the cylinder head, the constant screwing in and out of the plug, for which great force was used since a gas-tight joint was required, led to its being damaged. This damage, being hard to detect, led to general complaints and to an expenditure on the purchase of plugs which appeared to warrant the production of new varieties.

"To-day it is necessary to recall that valves or their springs were inspected almost daily—that petrol was injected at almost every start, and that the leakage of compression round the sparking plug was a matter which seriously exercised the motorist's mind before he started a journey in his automobile. The outcome of this was the presence of the spanner, muscularly wielded about the engine head. The sparking plug was often very good, but it

had usually a very long and delicate porcelain projection which was cracked without being snapped off, owing to the central wire which held it together. Men were not skilled at identifying which cylinder was missing fire, and so the plugs were removed in lots of four or two, according to the number of cylinders. It must not be thought that this explanation of the chief reason for the wastage of sparking plugs excludes the many other minor causes of trouble with this piece of apparatus, but it is clear that those electrical engineers who understood when they took up motoring what was to be expected of plugs had far less trouble with them.

"One of these men, who has had seven cars and two or three motorcycles, reports that he never had trouble with any plug which had once worked well, save that which he discovered was due to a cracked porcelain, or the deposit of a drop of oil between the spark points, a common cause of trouble which certainly was not cured by the use of a new plug, the bending of the spark points by contact with the inlet valve head, the turning round of the points to a wrong distance or gap by the clumsy tightening of the binding screw, or the short-circuiting of the points by a bridge of carbon. All these causes of trouble may be cured by attention to the plug rather than by condemning it, though the latter course was generally adopted a few years ago.

"The chief improvements of to-day in plugs are—(1) the use of nickel as the non-fusible metal which constitutes the points; (2) the firm formation of the plug, so that the points cannot be moved inadvertently; (3) the provision of a cushion under the porcelain to allow of the expansion of the metal stem; (4) the use of short, stout, and strong porcelains, glazed in such a manner as not readily to take a deposit of water. But the plug which was advertised to add 15 per cent. to the power of the engine has not yet proved itself, nor is it likely to do so."

Motor Truck "Makes Good" in Army Test.

Following an extensive test in which nearly 1,000,000 pounds of subsistence stores and property has been hauled, to say nothing of some 500,000 pounds of beef, vegetables and flour, Gen. T. E. Bliss has reported on the cost of operation of a two-ton truck that was purchased by the United States army for use in connection with an experimental rolling kitchen. Gen. Bliss has been in command of the provisional brigade at San Diego, Cal., where the supervision of the automobile test has been included in his duties. The motor truck was found to have an advantage in first cost of \$664, as compared with the equivalent animal equipment of three escort wagons, twelve mules and harness. In the cost of operation for 93 days the difference in favor of the truck amounted to \$372.

"From a military point of view," says

General Bliss, in reporting the outcome of the test, "the advantages arising from shortening the line of march, from the absence of horses, from the ability to send the trains on long detours, thus insuring their safety and at the same time with the certainty of their being on hand when wanted are obvious. In my opinion the time has come for the adoption of a motor truck specially designed for military service and its gradual substitution for the greater part of the work done at present by escort wagons."

How Memphis Uses Garbage Wagons.

With a capacity equal to that of fourteen mule carts of the kind used at present in Memphis, a new motor garbage wagon, installed by the Department of Health in the Tennessee city, has greatly facilitated the work of that department. The plan under which the new cart works is quite a novel one. The mule carts are retained, as formerly, in the work of collecting the garbage along their regular route, where stops are very frequent and very slow driving a necessity, but instead of being driven, when loaded, to the general dumping point at the crematory, they now dump their refuse at specified locations into the big motor car. As soon as the big cart is filled, it starts at high speed for the crematory, where it drops its load; it then is driven back to the next collecting point. In this way the work of the mules is restricted to the gathering of garbage within a comparatively small territory, and the instalment of the new truck is said to have doubled the efficiency of the garbage collecting service.

Motor Trucks' Part in "War Game."

Accompanying the two militia "armies" which industriously are playing the war game in the vicinage of Boston are two Kissel one-ton trucks, which in itself is not extraordinary, inasmuch as motor trucks have on more than one occasion assisted materially at army maneuvers. But it is extraordinary in that these two trucks are equipped with complete wireless telegraphy outfits, by means of which the commander in chief and his aides are kept in constant communication with each other. The apparatus which is carried and which embraces in addition to the necessary instruments, etc., large reels of wire for use with the ordinary variety of telegraph and telephone, is independent, which is to say that dynamos for generating the necessary current are included in the outfits.

Indianapolis to Buy Fire Apparatus.

Indianapolis has appropriated \$45,000 for the purchase of motor driven fire fighting apparatus, with which three new companies will be equipped. In an effort to secure the contract, one of the Detroit automobile companies last week took a number of city officials from Indianapolis to its factory in Detroit, paying the entire expenses of the party.

THE E-M-F AND THE FLANDERS CARS

Wherein Those Surprising Values Have Been Enhanced for 1912—Their Prices, However, Remain Unchanged.

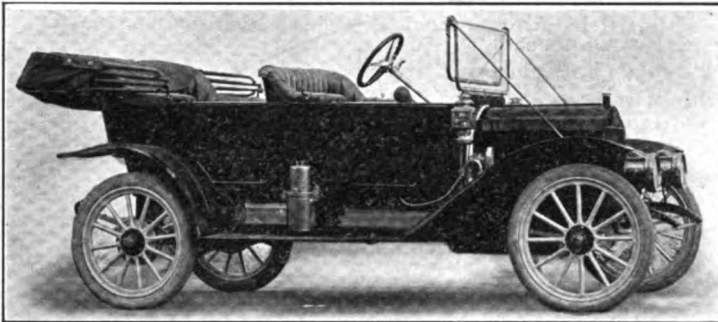
Having enjoyed a conspicuous position in the automobile industry by reason of the high quality of construction offered per dollar of investment, the E-M-F cars are now destined to attain further distinction as the first of the low-priced class to be furnished with demountable rims as standard equipment. That such is the case appears

ed on the same chassis as the touring car and is designed especially for the use of buyers who have occasional requirement for utility service. The coupe model also will be continued. With the exception of this type, the price of which will be \$1,475, the line will list at \$1,100, including oil and gas lamps, generator, horn, tools and magneto equipment.

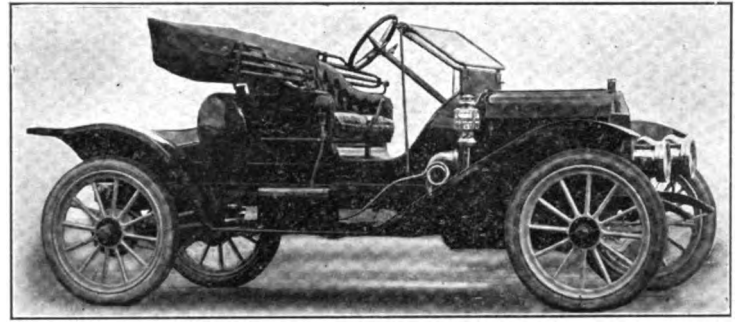
In respect to the alterations in chassis construction that are involved in the new product, probably the most conspicuous are the lengthening of the wheel base to 112 inches, thus affording about four inches more room in the tonneau, the employment of a drop frame, which lowers the center

style of finish and equipment will be improved in minor ways.

The "three-speed" Flanders 20 line will be continued with the closed-front body construction and structural improvements that were announced early in the present year. The closed-front touring car accommodates five passengers and is suitable for suburban as well as light touring service. It sells for \$800. The so-called suburban and the runabout models are listed at \$800 and \$750, respectively. The former is built with detachable rear seat, thus being made suitable for light haulage purposes, while the runabout has the skuttle dash and general air and appurtenances of the larger



FLANDERS "THREE-SPEED" CLOSED-FRONT TOURING CAR



FLANDERS 20 RUNABOUT WITH COMPLETE EQUIPMENT

from an announcement which just has been made by the Studebaker Corporation, among whose varied products the E-M-F and Flanders lines are included. While retaining the general character which has distinguished them from the beginning, the new line of E-M-F cars has been subjected to sundry changes in detail which are calculated to render it even more noteworthy both in appearance and utility than before.

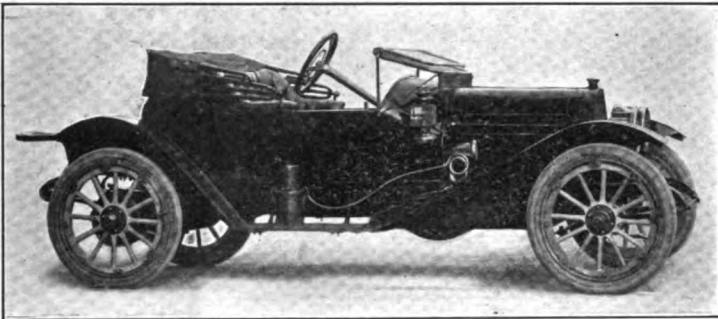
To the standard closed-front touring car,

of gravity and tends to render the machine easier riding, and the lengthening of the springs. The brake rods are now carried inside the frame, the throttle and spark control levers have been placed above the steering wheel for the convenience of the operator and by the same token the gear shifting and emergency brake levers have been mounted inside the body in every case. The car thus is slightly larger than before, despite which fact, its weight is not

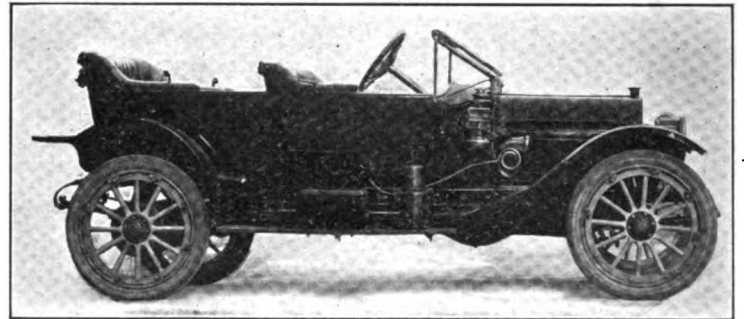
E-M-F. All three body styles are mounted on the improved Flanders three-speed chassis.

Condenser Idea in a Spark Plug.

By the use of a "button-head" terminal the Best Ignition Equipment Co., New York City, has evolved a spark plug in which a broad combination of virtues are believed to be embodied, chief among which are oil-proof and condenser quali-



E-M-F 30 ROADSTER—A BRAND NEW MODEL



NEW E-M-F TOURING CAR WITH DEMOUNTABLE RIMS

ties. The button-head is designed to retain a sufficient amount of heat to ensure the drying up of the oil, thus preventing it from bridging the gap and causing a short-circuit. Such is its structure that it also acts as a condenser, it is said, thus intensifying the spark. Insulation extending all the way to the sparking surfaces, a method of permitting the electrode to expand and contract without bringing pressure to bear on the porcelain, and a construction which permits the plug to be disassembled and re-assembled are other of its features.

The detachable tonneau model is mount-

as great, due to careful distribution of material at points where it will do the most good.

In fitting out the line particular attention has been paid to the matter of equipment. The closed-front bodies are provided with ventilators, in addition to which the front doors are devised in such a way that they can be latched in a slightly open position during hot weather, the result being to ensure a good circulation of air through the front part of the body. Special headlights of liberal size will be used, and the general

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WHEN SERVING THE LAW WAS COSTLY

Connecticut Chauffeur Pays Fine for Obeying Sheriff—Queer Tangle Involving Seizure of a Car.

Chauffeuring for a deputy sheriff is not always profitable, at least that is what Joseph Young, of Bridgeport, Conn., thinks, as he was assessed \$10 by a local judge for an alleged violation of the state law by not having his license tag on the car. It appears that George H. Platt, an automobile dealer in the Connecticut town, did some business regarding a car with one Otto Fisher, of Norwalk. Fisher did not come across with the money very rapidly and Platt placed the matter in the hands of an attorney.

Sheriff Wieler, armed with the property papers, hid himself via motor to Norwalk, taking Young, who is a regularly licensed chauffeur, along. After attaching Fisher's automobile he told Young to drive it back to Bridgeport and he would follow in another car. The chauffeur was also instructed to wait for the sheriff at a place near Norwalk, but the latter did not arrive soon enough and Young continued to Bridgeport. A policeman looked twice at the automobile and saw that the chauffeur's license was not attached, although a dealer's license tag was displayed, and as a result the chauffeur was taken to court.

It was in vain that his attorney pleaded with Judge Lockwood that the car was in the sheriff's custody and that he had the right to take it or send it to the storehouse without adding to or taking anything from it, even a license tag. Neither did it do any good to tell the court what awful things might happen if every sheriff who attached a saloon had to take out his own license from the county commissioner before he could run the business, while in his custody.

"The statutes are quite clear," said Judge Lockwood. "Ten dollars fine." Young paid out of his own pocket and is now wondering who is going to reimburse him.

Putting "Satanic" Speed to the Test.

Although no less than four eye-witnesses recently stood up before one of the lower German courts and swore that a certain motorist had raced through their village at a "devilish rate of speed, without sounding a horn or anything," the court declined to believe them and decided upon a personal investigation of the village and its roads. An automobile was used—in fact, the very car which was supposed to have traveled at the "satanic" rate—and his Honor, the judge, took a seat from which he could keep the speedometer in view.

While going at 20 kilometers an hour the car was stopped by a constable, who

claimed it had raced at 45 kilometers; a passing peasant vociferously proclaimed that it was going like the storm; in a minute several other peasants assembled, each asserting he had watched the car draw near, and swearing to a speed "like an express train," and so forth. The judge said nothing, but produced his credentials and the villagers melted away.

Leaving the village, a team was encountered which, despite continuous and loud signaling, refused to make room for the automobile to pass; when finally it did swerve to one side, it did so to the wrong side of the road. And still the judge said nothing. But back on the bench, he discharged the motorist; had the constable reprimanded and fined, and finally lodged a charge of perjury against the willing villagers, who were too ready to swear to speeds which were quite unattainable by that particular car.

Where Long Days Promote Motoring.

Why the Northwest seems to take more pleasure in motoring than the South, and, incidentally, why there are more automobiles sold per capita in the former part of the United States, is explained very plausibly by a motorist from Minnesota, who was a recent visitor in New York. "Persons living in the Northwest and the North," he says, "take more pleasure in automobiling than do those who live in the South, because of the length of the days. Much of the pleasure can be and is secured late in the afternoon and evening. The night time does not really begin until nine-thirty or ten o'clock. A newspaper can be read easily at nine o'clock during the summer months. This makes night driving a great pleasure and does much to make an evening enjoyable rather than tiresome, as is the case where constant vigilance must be kept owing to the intensity of the darkness."

Headlights Cause a Peculiar Accident.

The glaring headlights of an automobile driven along Pelham Parkway, New York, the scene of so many accidents, were responsible for the death, respectively fatal injury, of two persons, on Wednesday last week. Charles Hirsch, a manufacturer, of Brooklyn, and John Wotka, a chauffeur, were the victims of the peculiar three-cornered accident. It seems that Hirsch, who was driving his own car, had become stalled and had crawled under the machine to make repairs, when a second car approached from behind, driven by John Wotka. Nearing the scene of the accident, the chauffeur was blinded by the rays of the headlights on a third car, coming in the opposite direction, and ran full speed into the stalled car, crushing Hirsch to death and suffering fatal injuries himself. The third car, whose headlights were responsible for the crash, also ran into the wreck, but its passengers escaped with a general shaking up.

THE MINOR AND HIS POCKET MONEY

Germany's Highest Court Rules He Cannot Use It to Buy Motor Cars—Lottery Ticket Complicates Tangle.

With the increasing number of automobiles in Germany, the legal tangles caused by its use naturally are multiplying. One of the most peculiar cases, in which the automobile upset a law of long standing—namely the right of a minor to spend his pocket money as he pleases—last month came to a close before the Reichsgericht. That the case could reach this court is proof enough of the extreme importance attributed to it by the parties to it. The points involved were out of the ordinary.

A seventeen year old boy received from his father every week three marks—equal to about 75 cents—as pocket money, to do with as he pleased. The boy invested one week's allowance in a lottery ticket and was lucky enough to win a prize of 4,000 marks. As soon as he had the money in his hand he repaired to the nearest automobile dealer and purchased a car for 3,200 marks, paying cash. The dealer was somewhat suspicious about the lad's right to handle the sum, but when shown the lottery slip, the prize winners' names and the letter from the lottery concern advising him of his luck, his suspicions were allayed.

The boy's father, however, had other opinions about the use of the money, and returning the car to the dealer, he demanded that the purchase price be refunded. The dealer refused and a long drawn out legal battle ensued, which ended in the dealer being compelled to return the money. The Reichsgericht, in upholding the lower courts, found that while it was true that the father had given his son three marks a week to do with as he pleased, he never imagined the possibility of the latter buying a motor car with it, and that he probably would not have consented to the purchase had he known of it.

"Although the German law distinctly states that purchases made by a minor with money given to him by his father or guardian are legal," the court added, "the present instance must be considered an exception; no minor should be permitted to purchase an automobile unless with the specific permission of his parents—regardless of the source of the money."

How Paris Checks the Scorchers.

Following a wave of overspeeding in Paris, the Prefect of Police has determined to invoke a clause of the law of 1901 which gives him the power to withdraw driving licenses in all cases of second consecutive permission of his parents or guardians—regardless of the source of the money."

REFINEMENT OF THE COLE LINE

Lengthened Wheel Base, New Axle and New Oiling System the Most Notable Changes—Demountable Rims Adopted.

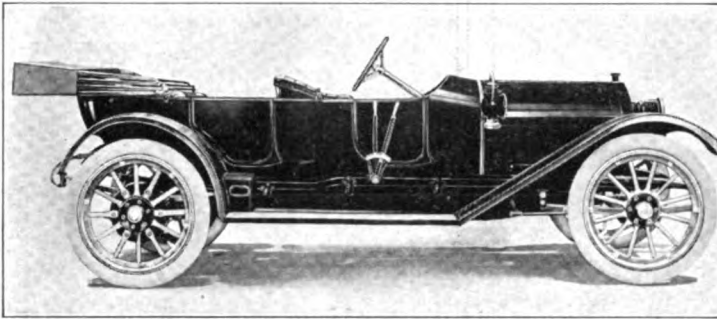
As a means of distinguishing between the present line and that which immediately is to succeed it, the newer models will be designated, not as Cole 30, but as Cole

increase its usefulness, however, while the complete line will be extended to embrace seven distinct models, one chassis sufficing for them all, the four open models listing uniformly at \$1,800. As is befitting the extra coachwork, finish and equipment, the three enclosed models will be sold at advanced prices.

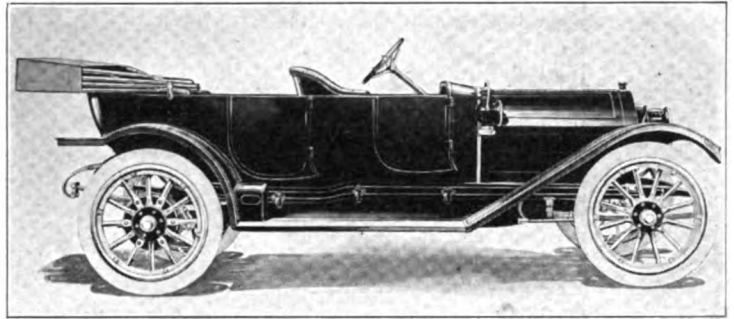
A summary of the changes which have been brought about indicates that the unit power plant with its four-cylinder 4½-inch

ment. Tire sizes likewise have been increased from 34x4 to 36x4 inches, and Firestone demountable rims are now to be used as standard equipment. The double-drop frame is retained, but has been lengthened to correspond with the added length of base.

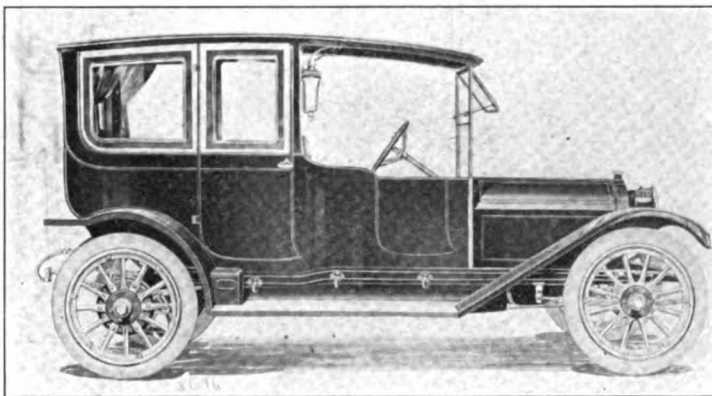
An improved engine oiling system has been adopted, which is a combination of the constant level splash and force-feed systems. Oil is fed into the crank case



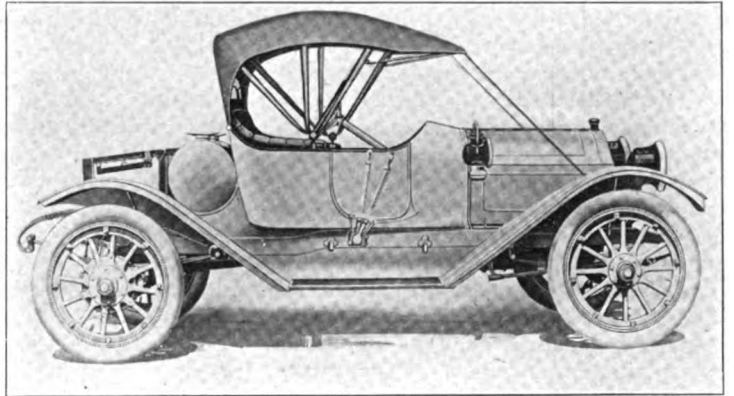
COLE 30-40 SMALL TONNEAU MODEL



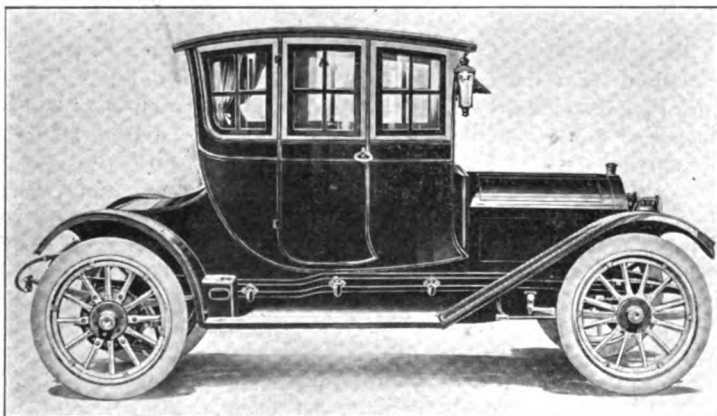
NEW COLE CLOSED-FRONT TOURING CAR



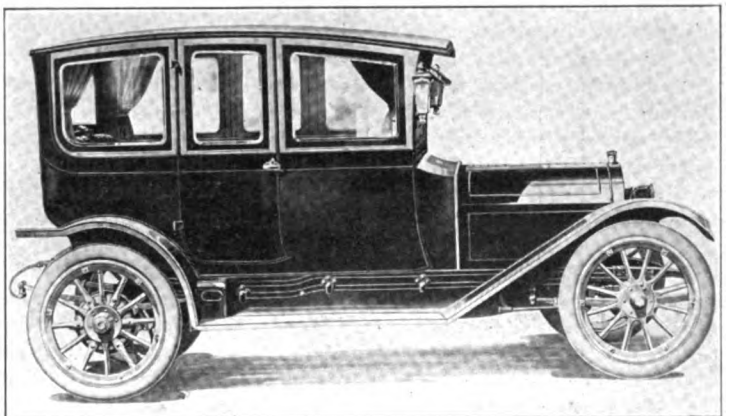
LIMOUSINE MODEL WITH CLOSED FRONT



ROADSTER MODEL WITH COMPLETE EQUIPMENT



THE NEW MODEL COUPE, MODEL I



THE "LONDON LIMOUSINE," KNOWN AS MODEL T

30-40 models. The change also expresses in a measure the conservatism of the former rating. The Henderson Motor Sales Co., of Indianapolis, Ind., which markets the Cole output, in making its announcement also lets it be known that the product in most respects will continue unchanged. A number of minor alterations will serve to

"square" motor, three-speed change gear and shaft drive has proved entirely satisfactory in the hands of the users. It has been deemed expedient to increase the wheel base from 118 to 122 inches, however, while a new Timken full-floating rear axle with triangular torsion member has been substituted for the former axle equip-

continuously by means of a plunger pump, but in very small quantities; the feeding point being the center of the middle cam shaft bearing. By this means the cam shaft is amply lubricated, while a constant renewal of the supply in the base is ensured. As the pump is geared to make but one stroke for every 50 revolutions of the crank

HERE'S THE FLANDERS ELECTRIC

**Long-Expected Car Is Formally Launched
—Proves to Be an Attractive Creation at an Attractive Price.**

Distinterested students of the automobile industry long have entertained the conviction that a fine opportunity awaits the manufacturer possessed of sufficient confidence in the electric vehicle to place on the market a new design contrived in such a way that it could be produced and sold in great quantities at what, judging by ruling figures, would be considered a very low price. That a period of lower priced elec-

shaft, it follows that the influx per revolution is very small, while the slow speed of the pump prevents it from gagging even when the engine is turning over at very high speeds. The circulating system depends on the splash resulting from the dipping of the connecting rod ends in individual basins that are provided in the case for the purpose. An original feature of the system is that the oil instead of draining back directly into the case is caught in suitable channels, which carry it forward progressively from the basin under one cylinder to that below the next in front of it. The oil thus travels constantly forward and is returned to the rear part of the case from the front crank pit by a special channel arranged for the purpose. This method of gravity distribution prevents any stagnation or pocketing of oil and also prevents unequal feeding to the different cylinders, even when the car is running or standing on grades.

In the way of finish the appearance of the new models has been considerably improved by the adoption of nickel plating as a standard method of treatment, all parts that are not finished bright being enameled black. Large ornamental side lamps are used, a noteworthy point about the equipment being that while electric lights are not standard equipment all lamps are of the combination variety, so that the installation of the double lighting system can be accomplished without embarrassment or undue expense. The control levers are mounted on the driver's right, and in the five-passenger touring car are placed inside the front door. On the small tonneau and roadster models they are placed outside as contributing to the general appearance of the machine by permitting a symmetrical arrangement of the body.

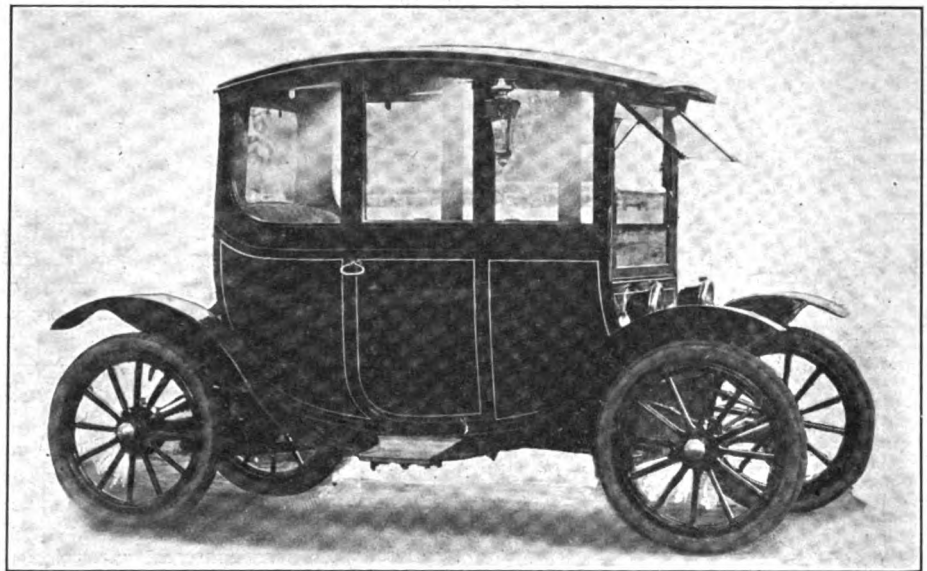
The entire line as at present constituted consists of the five-passenger touring car, small tonneau, roadster and speedster—the latter being a light and racy machine of the high-speed roadster class—these comprising the standard models. The enclosed types are the inside-driven coupe, which is a clean-cut version of the sedan type of body, the limousine and a so-called London limousine, which is an inside-driven, five-passenger car of the sort that should appeal particularly to the owner-driver class, particularly for fall and winter driving in town and country.

Stearns Slide Valve Models in Demand.

That the F. B. Stearns Co. has had no cause to regret its radical action in discarding the poppet valve motor for the Knight slide valve engine and is not likely to experience such regret, was remarked by H. H. Hower, the Stearns advertising manager, who was in New York yesterday. Last week, he reports, which was the third week since the new Stearns models were announced, the orders received were 20 per cent. greater than during any previous week in the company's history.

sign reveals modern ideas applied with consistency and thoroughness.

As the picture shows, the body is of generous proportions, designed along new lines, but with ample suggestion of the antique coach form which is so much in favor with closed car builders at the present time. The wheel base is 100 inches, and the entrance has a step ten inches from the ground. Owing to the liberal interior proportions accommodation is afforded for five passengers, or even six on occasion, while the gray whipcord, blue broadcloth and leather upholstery—either style being optional to the purchaser—are of standard and approved design and manufacture. The equipment includes specially designed side and tail lamps, as well as two sets of slip covers, the



NEW FLANDERS ELECTRIC WHICH SELLS FOR \$1,775.

trics is destined to come is far from improbable, and it is likely that the advent of the Flanders electric, which just has been announced, will go a long way toward strengthening the expectation. The new product is built up by the Flanders Manufacturing Co., of Pontiac, Mich., in which Walter E. Flanders is the moving spirit.

While the introduction of the new electric long has been foreshadowed and many of its features already had become familiar to those "in the know" there is every reason to believe that it will in no sense prove a disappointment. It is designed along exceptionally graceful lines, has the low entrance and low center of gravity, which make for easy riding and convenience in city use, and, furthermore, is placed at a figure that is likely to cause it to attract attention, its price being \$1,775, fully equipped. It is further distinguished by reason of the fact that it is worm driven, that form of transmission lending itself especially well to the smooth and silent-running qualities of the electric motor as well as to the high gear reduction which the speed of the motor commands. In other respects as well the mechanical de-

latter being included out of special deference to the delicate habiliment of possible lady occupants.

New Steering Gear for Truck Use.

After four years of study and experimentation the Schweppe & Wilt Mfg. Co., of Detroit, Mich., which makes a specialty of producing steering gears and connections of various sizes and types, has evolved a new style steering gear for trucks, in which are combined the advantages of great strength and durability, long leverage and semi-reversibility. The particular advantages of the latter quality, as pointed out by the makers in a circular which just has been published, are that it protects the gears from excessive shocks, such as are sustained by the irreversible gears, while it offers sufficient resistance to render the gear easy to handle. The mechanism is an adaptation of the familiar principle of the back-gearing of a lathe, and is solidly mounted in a two-part case which is parted along the horizontal plane. The gear is made in two sizes, one for one-ton trucks and the other for vehicles of three to five tons capacity.

"Silent" Chains as Substitutes for Sliding Gears

The question of the reduction of the multitudinous noises which at present are more or less synonymous with the operation of self-propelled vehicles, is one which interests both owner and manufacturer. Other things being equal, and given the choice between two cars, one of which was slightly noisier than the other, which of them would the average individual choose? The answer is obvious. And of all noises, none compares to that produced by the ordinary type of change gear sets in which the usual type of spur gears is used.

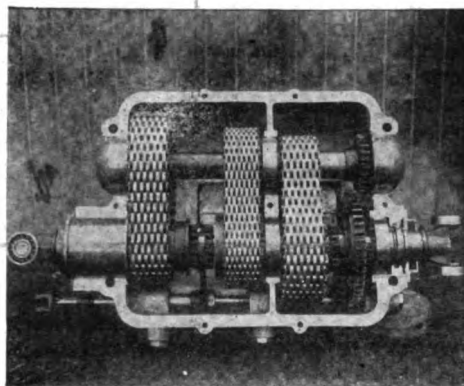
Naturally, the next question which arises is: "Why are spur gears noisy?" Theoretically, they should not be so. That they are, however, is a matter which requires small proof; and it practically is impossible under existing conditions to so finish gear teeth as to make them operate noiselessly in the proper sense of the word. Some are quieter than others, it is true, and while this is due in a large measure to methods of manufacture, it is the opinion of at least one authority that the production of such silent gears is purely accidental. Which apparently is borne out by the fact that of several sets of gears made of the same stock, with the same machinery and under identical conditions, one set will be quieter than the others.

The difficulty of producing practically silent gears becomes apparent from the statements of several engineers, who agree that for noiselessness, as it generally is understood, it would be necessary to grind gear teeth accurate to within 0.01 millimeter, which is 0.000394 of an inch. Whether or not such a degree of accuracy could be obtained, even by extremely careful cutting and grinding and subsequent "running in" with oil and emery or some other abrasive agent, is open to question.

But if such a degree of accuracy were possible, and the gears thereby might be made practically "noiseless," it readily may be appreciated that the cost of production would be well-nigh prohibitive, at least in the case of commercial vehicles where first cost of the vehicle constitutes such an important feature. Spiral or herring-bone gears might be used and, in fact, have been and still are used to a limited extent. But they require even more accurate manufacture than the spur type, the opinion of a noted British engineer being "that they must be as accurate as a ball bearing, or even more accurate." "They must be ground perfectly," he says, "and as far as I am aware there is no method for grinding small spiral gears which is anything like practical, on account of the cost."

But while the manufacture of pleasure

vehicles warrants such expensive methods, and logically, on the score of increased efficiency, the manufacture of commercial vehicles warrants it, too, it is a psychological fact that the purchaser who demands and is willing to pay for silence in a pleasure car, cares little for such a feature in a commercial vehicle. Perhaps the situation is well explained by the answer of an owner of a by no means small fleet of motor trucks, who said, when questioned on the desirability of silence: "What do I care how much noise my trucks make? I don't have to ride in them, and as long as they deliver the goods that's all I'm worrying about." Briefly, there is little or no demand for silence in motor trucks, therefore they are the most flagrant offenders.



COVENTRY NOISELESS GEARSET

That there ought to be an insistent demand for silence, if not for the absence of noise itself, then for the increased efficiency, is apparent. A noisy gear box spells friction, and as friction means wear and the absorption of power, the genuine desirability of noiselessness becomes apparent.

But whether or no owners or prospective purchasers desire silence, there is another side to the question. They may be forced to demand it. Already a large number of cities and towns have passed laws making the use of muffler cut-outs and loud horns punishable by fine or imprisonment and it is not unlikely that similar laws, affecting those who permit other kinds of unnecessary noises, will be enacted. Laws or no laws, however, it is an undisputed fact that the public must be catered to to a certain extent, and the application in this case consists in the elimination of noise.

Just how much influence public opinion may have is well evidenced by the experience of the great London General Omnibus Co., of England. The company operates a very large fleet of public service motor buses and they are quiet. But they

were not quiet up to a short time ago. The noise emanated from the gear boxes and it was so annoying and the complaints were so numerous that the authorities of Scotland Yard, from whom licenses must be obtained, refused to permit their operation, the result being that the owners were forced to take steps to abate the nuisance. This they did by replacing the gear driven change gear sets with chain driven "gear" boxes. The buses thereby have been made noiseless, their efficiency has been increased, less repairs are necessary, and those that require to be made are done with greater facility. In fact, the manifold advantages of the chain "gears" are so apparent that the London General Omnibus Co., which owns the patent under which the boxes are made, now has some 300 in use and is replacing the old type of gear driven transmission as rapidly as is possible.

Up to the present time, the chain driven "gear" has not made its appearance on American cars, though, in view of the fact that at least one prominent firm of American manufacturers has been investigating its possibilities with a view to adopting it for commercial vehicle work, it is not improbable that it will be seen here in the not far distant future.

The general shape of the chain driven gear set is not unlike the familiar types of gear driven boxes, the accompanying illustration, which shows a box manufactured by the Coventry Chain Co., Ltd., Coventry, England, being designed to transmit 20 horsepower at 1,000 revolutions a minute. In size, however, and in weight, it is larger and heavier, and for this reason it is doubtful whether it would be available, economically, for use in pleasure vehicles. For the work for which it is intended primarily, however, the transmission of power in commercial vehicles, it undoubtedly possesses many advantages not found in any other type of change gear set, and it is claimed that its slightly increased first cost will be more than offset by the increased service and efficiency and freedom from trouble.

The chains which are used are the Coventry "Noiseless" chains and they differ materially from the usual type of roller or block chain commonly used for power transmission. As ordinary chains "stretch" and the sprocket teeth become "hooked" owing to the sliding action of the chains, which therefore soon fail to fit the sprockets properly, they become noisy and inefficient and are unsuitable for long continued use without attention. In addition to which, when the chain becomes worn and

does not fit the sprockets properly, but one of the links, and consequently one of the sprocket teeth does any work. The so-called "silent" chain, however, of which the Coventry chain is an example, is heir to none of these ills, which is to say, that there is no appreciable sliding action between the chain links and the chain wheels, and therefore there is only very slight wear.

Such wear as occurs comes at the hardened steel bushings through which the pins which join the links are placed. The links are steel stampings so formed and assembled as to present two V-shaped teeth toward the corresponding chain wheel teeth. The adjacent teeth are pointed together flexibly, the plates of one link being interposed between those of the next link, on the pivot pin. In action, the tooth driving faces of the chain drop into direct contact with the teeth on the chain wheel and leave without slippage at the points of contact. There is no sliding action, the links lifting themselves clear of the chain wheel teeth. As the chain lengthens, owing to wear in the pivot pins or at the faces of the teeth, it automatically climbs the chain wheels, assuming a larger pitch circle, all the links thereby still coming in contact with the chain wheel teeth and therefore doing their proper share of the work.

There are three general methods of maintaining the chains in position on the chain wheels. The first of these, and the one which is most generally used, is to form the chain wheels with circumferential grooves in their centers and use a set of blank links which fit into the grooves. Another method embraces the use of blank links at each side of the chain enclosing the chain wheel. The older method of employing flanged chain wheels, though still used in isolated cases, gradually is giving away to the two former methods.

While the chain transmission for change gears has but recently attained to any considerable degree of prominence, it is by no means new, and the old saying that "there is nothing new under the sun" holds good in this case as it does in an infinite number of others. Which is to say, that back in 1904, when the automobile industry was scarcely out of its swaddling clothes, a prominent pioneer American manufacturer, Elwood Haynes, conceived of the possibilities of this type of transmission and employed it on a number of the Haynes cars of that period. Morse chains were used and the speed changes were obtained by means of individual friction clutches. Many reasons for the disappearance of the transmissions from Haynes cars have been ascribed, but it is likely that the principal one was the failure of the friction clutches to measure up to the exactions of an uneducated public.

At any rate, the chain transmissions were replaced with the orthodox types of gear driven change gear sets, and not until about a year ago, when the London Gen-

eral Omnibus Co. first started to use chain "gears," did they again make their appearance in such form as to merit serious consideration. At present there are two types of chain driven change gear sets on the market, the Aries, which is manufactured by the Aries company, of France, which company has but recently taken up chain transmissions for use in pleasure cars, and the Coventry, which is illustrated herewith and which is used by the London General Omnibus Co.

As may be seen in the accompanying illustration of the Coventry chain transmission, the chains are not all of the same pitch, which is to say, that the distance between link centers of the two outer chains is greater ($\frac{3}{4}$ of an inch) than the distance between link centers of the center chain ($\frac{5}{8}$ of an inch). In the Aries transmission, on the other hand, all the chains are of the same pitch. The reason for the difference of pitch in the Coventry chains probably is merely for convenience in design and to obtain the proper ratios while maintaining all the chains with the proper degree of slack.

In both of the designs three speeds ahead and reverse are provided for, and in both of them the reverse motion is obtained by means of spur gears, it being impossible in the space allowed to use chains for this purpose. The Aries transmission also differs from the other in that there are no intermediate bearings on either the main or lay shafts. The Coventry has a center bearing on both shafts. Despite these slight differences, however, both types are very similar and in operation are identical, the lay shaft in each case being constantly in motion as long as the motor is running and the clutch engaged.

In each case the changes of gear ratio are obtained by means of sliding jaw clutches, third speed ahead being the direct drive. It has been suggested that for those cars in which the highest gear ratio obtainable is an over step, i. e., the road wheels are rotated a greater number of turns per engine turn than when the direct drive is used, the chain transmission should prove ideal owing to its silence. Several American cars now are built with over step transmissions, and while they are undoubtedly quiet in a sense, the degree of noiselessness which is obtained is not as great as might be realized with chain transmission.

Briefly, the advantages of the chain transmission are efficiency (94 to 96 per cent.), absolute quietness when running, freedom from noise when changing "gears," and long life. To these must be added the facility with which repairs, when necessary, may be made. In this respect, the remarks of A. R. Clayden, a prominent British engineer, and editor of the Automobile engineer, made at the recent convention of the Society of Automobile Engineers at Dayton, Ohio, shed an unwonted light.

"There is one advantage of the chain box

for truck work," he said. "We find in England that omnibus drivers and truck drivers are very careless men. They are likely to knock the transmission about, but the worst thing you can do to a chain transmission is to break a chain. The cost of renewing the chain entirely—not considering the cost of a few links—is very small; and it is absolutely nothing as compared with the cost of putting in a new spiral gear which has been stripped. To insert a new spiral gear means taking the whole box to pieces. I know the London General Omnibus Co. claims that they saved \$6,000 a year on work alone, and on nothing else." From which it would appear that the chain transmission actually is a factor of safety and thus protects other and more expensive parts of the vehicle from injury.

There is another cause of noise in the ordinary type of gear driven change gear set to which very little attention is paid, namely, the improper meshing of the gears through wear in the bearings of the shafts. Naturally such trouble is foreign to the chain transmission, as the amount of wear which is inevitable with either type and which would have a decided effect on the noise producing proclivities of the gear driven box, would, owing to the construction of the chains, which allows for a certain amount of wear, have absolutely no effect, as far as to cause noisiness, on the chain transmission.

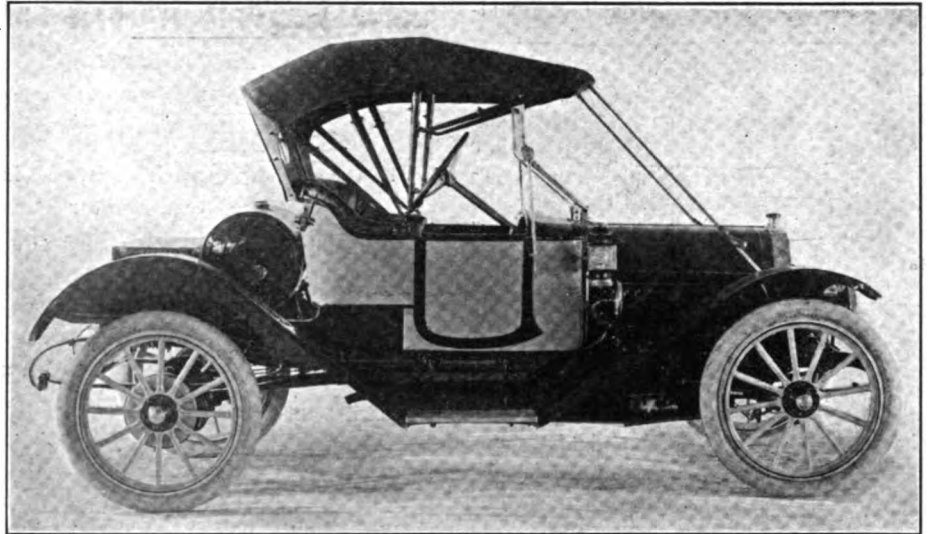
Last but not least, there is a decided advantage in the chain transmission in case of breakage of one of the chains. In the case of a stripped gear, for instance, it would be a hazardous proceeding to run the car at all until the broken parts had been removed, as there would be danger of the shattered teeth being carried by the lubricant into the other gears and causing further injury. With the chain transmission, on the other hand, the breakage of a chain need cause no further apprehension on the part of the driver. Only one speed would be "put out of commission," and the broken chain would simply drop down into the oil sump out of the way. That is, it would if the oil sump were large enough to accommodate a broken chain. It is in the Coventry and Aries transmissions, and this is a point which should be remembered by manufacturers.

Plainly, it seems only a matter of time before manufacturers will turn to the chain transmission. Sliding gears long have stood the abuse of the initiated and the uninitiated alike. They have been styled "unmechanical," and it is certain that they are not as efficient as might be expected, though in this respect it is only fair to say that in their present forms they are more efficient than they ever were before, which may or may not mean that they are susceptible to little if any further improvement. At any rate, numerous attempts have been made to do away with the change speed mechanism entirely, whether merely for the simplification of the vehicle or for increased effi-

TWO NEW MODELS FROM WARREN

More Powerful Than Old But Bear Family Characteristics—Price of "30" Reduced and Value Increased.

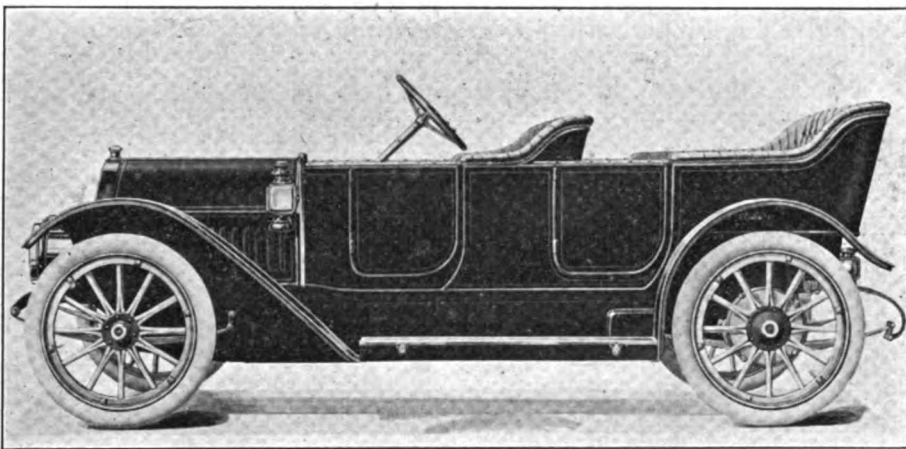
Recognizing a distinction between the demands of hot weather comfort and cold weather comfort, the new model Warren-Detroit cars are to be made with detachable front doors, the attachment being made in such a way that this feature is not revealed to the eye at any time. In its announcement the Warren Motor Car Co. indicates that it will produce three distinct models, of 30, 35 and 40 horsepower, respectively. The 30 is to be a continuance of the single chassis which has been produced up to this time and will perpetuate many of its successful features. The other two models will be slightly different in point of detailed construction, but will retain the same general construction that al-



WARREN 35 CLOSED-FRONT ROADSTER COMPLETELY EQUIPPED. PRICE \$1,415

floating rear axle which is coupled to the chassis by means of a torque rod of conventional pattern, the propeller shaft

of the 30 remain about the same as hitherto, but in connection with its revision it has been found possible to reduce its cost to the consumer slightly. The five-passenger touring car now sells for \$1,250, instead of \$1,350, as formerly, the price including top, windshield, Bosch magneto, 34 x 3½ inch tires, Universal quick detachable rims, three oil and two gas lamps, gas tank, horn and tools. The top and windshield, detachable rims and certain other items, such as the tonneau rails, are added to the previous specifications, so that in point of value to the purchaser, the net price for the complete car has been lowered more than the mere price quotation would make it appear. Similarly the small tonneau now lists at \$1,250, instead of \$1,300, while the roadster is priced at \$1,125 instead of \$1,200. The greatest price reduction, however, is that of the torpedo, which now sells for \$1,300, with practically the same equipment as the touring car, whereas the former price was \$1,500. This model has a 4 x 4½ inch motor, 110-inch wheel base, double ignition, semi-elliptic front and three-quar-



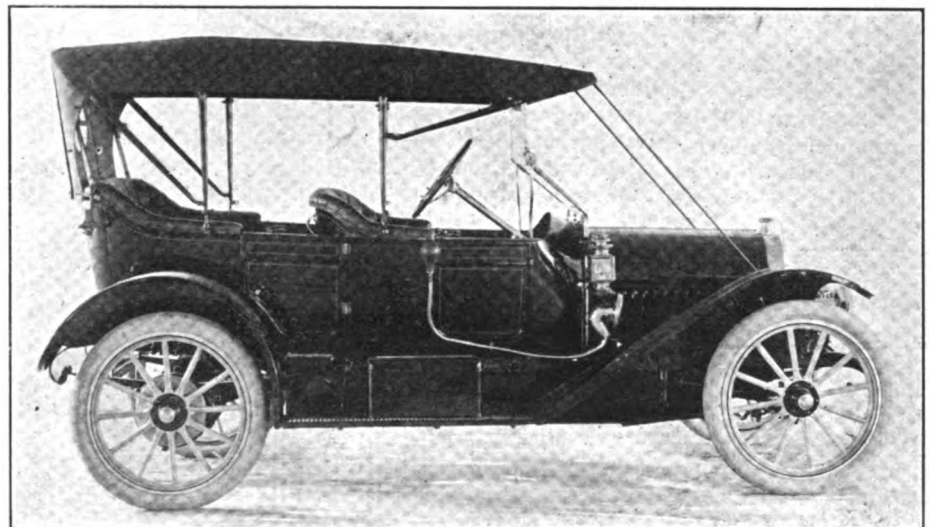
NEW WARREN 40 CLOSED-FRONT TOURING CAR. PRICE \$1,700

ready has become identified with this particular one of Detroit's many automobile products.

In comparing the construction of the three types that now are being marketed it is necessary to distinguish chiefly between motors, change gears and rear axles. The power plant equipment of the 30 and 35 horsepower models comprises a block type of motor with valves on the right, a three-speed sliding change gear and semi-floating rear axle with torsion tube enclosing the propeller shaft. The new 40 horsepower model, on the other hand, while retaining the block type of motor, practically the same in general construction as that used in the other two models, has its power plant mounted in the reverse position, the valves thus being placed on the left, together with the carburetter and intake and exhaust piping, the pump and magneto being on the right. This model also has the so-called vertical type of change gear, in which the lay shaft is carried under the driving shaft, and a full-

thus being equipped with two universal joints.

As has been intimated the specifications



WARREN 30 TORPEDO SELLING AS EQUIPPED FOR \$1,300

ter elliptic rear suspension and external-internal brakes.

The "12-35" model, as it is called—the numerical prefix to this and the other model designations indicating merely that they are designed for the market of this year and next—is built as a five-passenger touring car and closed-front roadster, and sells for \$1,500 in touring and \$1,415 in roadster forms. It is somewhat larger than the 30-horsepower model, though resembling it in a number of details, and carries what is now known as full equipment in both styles. It has a $4\frac{1}{8} \times 4\frac{1}{2}$ inch motor, the valve stems and tappets of which are enclosed by readily removable cover plates which serve to reduce the sound of the enclosed parts, cone clutch, connected with the change speed gear by means of a sliding universal joint, 112-inch wheel base, and is made with 56-inch standard tread, and 60 inch for the southern trade.

The new 40-horsepower car is a much more impressive machine, despite the fact of its close similarity in line and feature with the two less powerful models. To render it easy of access and afford it a low center of gravity it has a double-drop frame, instead of one that is raised in the rear only, this circumstance, together with the employment of tool boxes mounted on the under side of the running boards, serving to accentuate the rangy appearance which its 116-inch wheel base lends to it. The 40 motor is of $4\frac{1}{4} \times 4\frac{3}{4}$ inch bore and stroke, otherwise being of uniform design with the 35-horsepower style. It is built in the form of a liberally proportioned touring car to sell for \$1,700, with complete equipment, including demountable rims.

As is true of the other two models, it has double ignition, including the Bosch high tension magneto, and two sets of spark plugs with independent wiring. The new style change gear mechanism which is used, is mounted in a one-piece casing, which is hung by four arms from the sub frame, which also carries the motor. The springs, which are of the same general style as those used on the smaller chassis, are $\frac{1}{4}$ inch wider, being $2\frac{1}{2}$ inches in width, and the 38-inch front spring is 2 inches longer than that of the 35-horsepower model. The rear spring is 48 inches long, which is the same size as is used on the smaller cars. In the matter of finish and fitting, extra pains have been taken to render the machine completely satisfactory, the closed-front body being equipped with ventilators, the tonneau being arranged with robe and foot rails, and the lamps enamel finished.

Remy Once More Enlarges Its Plant.

By the addition of a building, 60 x 90 feet, which just has been completed, the Remy Electric Co. has increased the size of its plant in Anderson, Ind., to approximately 150,000 square feet. The new structure is of brick and is designed to afford the maximum of daylight.

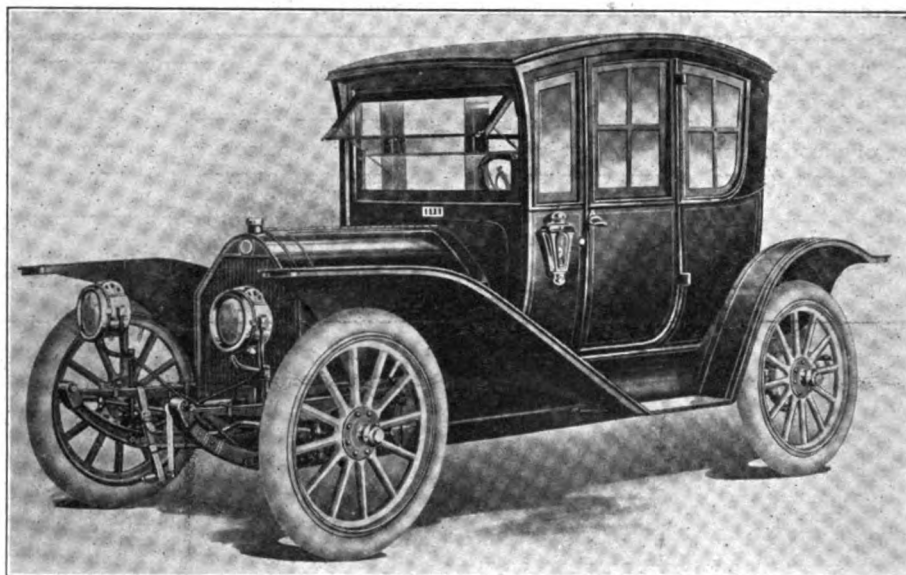
REGAL FEATURES ITS NEW COUPE

Underslung Closed Car of "Nifty" Design Disclosed—Higher Powered Touring Car Also Due to Appear.

To the rapidly growing list of inside driven coupes the Regal Motor Car Co., Detroit, Mich., has added a new and distinguished looking offering in its new Regal 20 Colonial model, which is an adaptation of the underslung mounting to the enclosed type of car. The effect is to secure a most striking vehicle in which the curved roof and paneled windows of the Sedan body are rendered conspicuously attractive by

is sufficient to afford a good market for such a machine.

In addition to the new coupe and the underslung roadster, which has sundry minor improvements as compared with the current output, the new Regal line will comprise a brand-new 35-horsepower underslung roadster and a standard type chassis, which, as a five-passenger closed-front touring car, will sell for \$1,000, and as a small tonneau for \$1,050. The new underslung model, the price of which will be \$1,400, will have 118-inch wheel base, 34 x 4 inch tires and standard equipment, including gas searchlights. In point of structural make up it will have a $4\frac{1}{4} \times 4\frac{1}{2}$ inch four-cylinder motor with dual ignition, a three-speed gearset mounted on



REGAL 20 HORSEPOWER UNDERSLUNG COLONIAL COUPE

the low elevation of the top, the large wheels and the long and sloping guards. The model is further rendered attractive by its extremely low price, which has been fixed at \$1,250.

The chassis is the same as that of the model N underslung roadster, which was brought out last winter. It is equipped with a $3\frac{3}{4} \times 4\frac{1}{2}$ -inch four-cylinder motor with dual ignition, cone clutch, three-speed selective change speed gear and shaft drive. It has a 100-inch wheel base and 34 x 4 inch tires.

The coupe body is designed with liberal proportions, full advantage being taken of the available space on the chassis. Consequently it is roomy and comfortable, accomodating three passengers without cramping and affording entrance and exit from either side. The underslung suspension, giving a low center of gravity and a low entrance, is particularly suitable for city and suburban use, and the car has been put on the market with particular reference to the requirement of physicians and professional men for an enclosed car of the inside driven type, and which, it is believed,

Hyatt roller bearings, shaft drive and cone clutch.

Horn's Tone Controlled by Push-Button.

Eliminating the complications of batteries, switch and wiring, the G. Piel Co., New York City, has brought out a new horn of the siren tone type which is wholly mechanical in operation. Compactly constructed and carrying a six-inch projector, it weighs but five pounds and is readily attachable to any convenient part of the car. The sound-producing elements are a diaphragm and a rotor carrying a series of rollers which contact against a pin projecting from the diaphragm. The rotor is driven from the push-button by which the horn is operated through a rack, gear and ratchet mechanism. The strength and pitch of the sound depends on the vigor and rapidity with which the button is depressed, the tone thus being entirely within the control of the operator. All contact parts are hardened and the general construction is such as to ensure long life and continuous operation to the mechanism.

SWISS METHOD OF METAL COATING

**Schoop's New Process and the Promise
That It Holds—Preserves Wood and
Prevents Iron and Steel Rust.**

By the invention of a new method of metal coating it is thought that several manufacturing problems which heretofore have proved difficult of satisfactory solution now may be disposed of in an economical manner. The process is of particular interest to the automobile industry for the reason that it permits most of the common metals to be deposited on various surfaces in a manner that is especially useful for protective purposes. The metaliz-

ing of wood body surfaces is one of the possible applications that immediately presents itself, as does the aluminizing of various iron and steel chassis parts to prevent them from rusting.

such a gas may be used at this stage as will oxidize the metal, so as to give a coating of oxide instead of metal. The action of depositing the metal appears to be as follows:

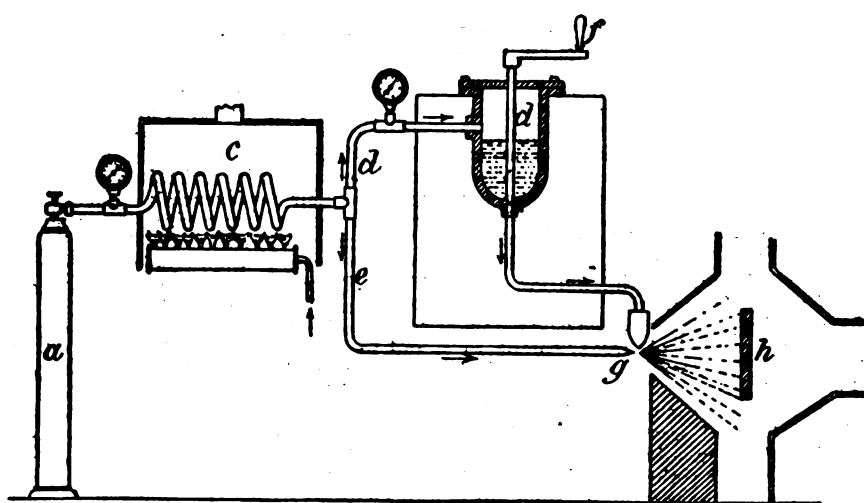
"When the metal is atomized in the form of a cloud, its particles strike the surface which is to be covered, but here they lose their original spherical form and are flattened out upon the surface into blotches which unite together and form a continuous layer of a certain thickness over the object. The metal is projected at a very great speed from the orifice, and this explains why the particles are no longer liquid when they reach the surface of the object, are able to make up a homogeneous and very compact layer whose density is about the same as for the metal in its usual state,

to coat the ironwork all over with a non-rusting metal layer more durable than any kind of paint, and, as the inventor claims, also more economical. Numerous applications which suggest themselves for the new process might be divided into two classes. On the one hand we may wish to coat an article for decorative or protective purposes; on the other hand the aim may be to form a crust over an article, in order to subsequently strip it off in form of a mold. Additional uses of a somewhat different character are the coating of wood, porcelain or glass, to render their surfaces conductors of electricity; and the metal coating of glass mirrors, whether parabolic, spherical, plane, or of any other kind.

"Among the uses which may be made of the process for the purpose of applying a protective coating, may be mentioned the encasing of telegraph poles at the end which is buried in the earth, and especially at the point where they emerge from the ground. By metal-coating wooden propellers for airships and aeroplanes the double purpose may be served of imparting to them a protective coating and reducing their friction. A peculiar application is the deposition of an aluminum layer one-eight-hundredth of an inch thick upon balloon envelopes, whereby they are rendered gas and water tight. Capsules for bottles can be very economically replaced by metal coating put on by the new method. A bottle thus sealed is hermetically closed, and cannot be used again without showing obvious signs of having been opened before. A good substitute for tinfoil, such as used for wrapping chocolate and the like, can be made by metallizing paper, the surface of which is burnished or in any other way given a bright or satinized surface.

"The somewhat perplexing problem of coating metal or other substances with aluminum seems to be most satisfactorily solved by Mr. Schoop's new method. This application alone would render the new process very valuable. Other uses which have been suggested are the metalizing of textile fabrics, of the inner surfaces of new pneumatic tires, the coating of bottles and other vessels for use in chemical industries, the metalizing of carpets for theater decorations almost any number of others which will readily occur to the reader.

"Examples of the second class of application mentioned above, in which the process is used to produce a surface mold, are the manufacture of printing blocks, stereotype and matrices, and the production of a variety of articles ordinarily prepared by the galvano-plastic process. There is no difficulty in making hollow objects, such as, for instance, seamless metal tubes. The possible applications of the new process seem, in fact, almost unlimited, while the inventor claims that in point of view of economy his process easily wins over most of the methods at present in use."



APPARATUS USED IN THE SCHOOP METAL COATING PROCESS

as experiments made at the Zurich laboratory have shown. Even though the metal has been melted in the crucible, the vapor is not very hot when it is projected out by this process, so that there is no difficulty in depositing it upon readily combustible substances, such as paper, wood, celluloid, or even animal tissues.

"The deposits of metal thus prepared are much harder than those obtained by the usual methods. For instance, tin, when cast, showed only a little over one-half the hardness of tin applied by the Schoop process, when tested by the Brinell method of dropping a steel ball and observing the mark made by it. Under the microscope there appeared to be no difference as to the fineness of the structure as compared with the ordinary metal.

"The new process lends itself to a number of interesting and useful applications, since most of the common metals can be deposited in layers upon various surfaces. One very important use should be the coating of structural iron to protect it against weathering. The operation should be readily applicable to finished structures, such as cranes, bridges, etc. There should be no difficulty in making the coating apparatus portable, so that it can be used on the spot

ing of wood body surfaces is one of the possible applications that immediately presents itself, as does the aluminizing of various iron and steel chassis parts to prevent them from rusting.

The process is the invention of M. Schoop, a Swiss engineer, who first demonstrated it before the Engineers' and Architects' Association of Zurich. It has since been presented before the French Academy of Sciences by Prof. D'Arsonval. According to the Scientific American, the metal coating is produced by spraying a cloud of finely atomized metal particles on the surface to be covered. That authority goes on to describe the process in detail as follows:

"The metal is melted in a crucible and is allowed to escape by a capillary opening, under a pressure placed upon the surface of the melted metal by compressed air or other gas. Just after emerging from the opening, the thread of melted metal escaping under pressure is atomized by a gas or steam spray, so as to form a cloud of finely-divided metallic particles. Through this cloud is passed very rapidly the object which is to take the coating. An inert gas is best used to give the pressure on the melted metal, while another kind of gas can be used for the atomizing. If desired,

WEED CHAIN GRIP PATENT UPHELD

(Continued from page 386)

kind, and, therefore, could not have pre-conceived the Parsons concept. At most their devices are mere rough embryos, in an altogether different connection, of some features of what subsequently became the mechanical embodiment of the Parsons concept.

Patent No. 681,173, issued October 20, 1901, to Maxim & Bardwell, for a detachable traction strap, is the only alleged anticipating device upon which we have had any trouble. One question of fact arises in connection with this patent, viz., were the transverse straps, or some of them, intended to pass around the felly of the wheel, or was it left optional to thus fasten them or not? The Parsons patent having been granted by the Patent Office, the burden is on the defendant to show anticipation. This burden the defendant has not clearly met. Were the case to turn on this question of fact, we would be inclined to hold that the Maxim & Bardwell patent contemplated that the device was to be thus fastened upon the wheel by such straps, more or less in number. It is not necessary, however, that we should thus hold.

As already stated, the Parsons concept was an entirely novel one in connection with automobile anti-skidding devices. It contemplated, in operation, two features: (a) that as a method of gripping the ground and thereby obtaining traction the transverse chains next the ground should loosely lie on the ground; and (b) that as a protection to the tire the transverse chains should move circumferentially around the tire—not that slow circumferential movement that is an incident even to the close fitting devices, but an easy circumferential movement—a movement that, instead of being a mere incident, is one of the functions of the adjustment. In the Parsons concept the transverse chains, instead of

being practically an integral part of the wheel taking hold of the ground, are a part of the ground upon which the rubber of the wheel takes hold, and the circumferential movement, instead of being a forced movement resulting from the hammering of the transverse chains upon the ground, is a movement that results from the mere looseness of the adjustment; and these two distinct purposes of the concept find their mechanical embodiment in the utilization of the two rings smaller in diameter than the periphery of the wheel inclusive of the tire, so that they cannot come off, but long enough that the transverse chains, as they approach the ground in the revolution of the wheel, fall loose from the tire by gravity, these falling loose upon the ground in advance of the wheel, and thus, also, causing them to advance circumferentially on the wheel.

The Maxim & Bardwell patent, on the other hand, was meant to be tight fitting—in effect an integral portion of the wheel—either because of the character of the material used or of the auxiliary means of attachment; for anything else than a tight fitting sheath would not only destroy, in that device, the transverse straps, by rolling them up as the wheel proceeded, but would destroy the tires also, by turning in upon them the pins that the patent contemplated the straps should contain. In other words, Maxim & Bardwell had neither the concept of transverse straps being laid upon the ground upon which the rubber should take hold (the Parsons concept) nor the concept of circumferential motion as a function of the device and due to the looseness of the adjustment (the Parsons concept) nor the mechanical arrangement or embodiment that in operation would bring about that result.

True, this difference, so far as it is a difference in mechanical arrangement and embodiment, is a difference largely of what we call the looseness or tightness of fitting of the rings upon the wheel. But this does

not make it, in our judgment, a difference in degree only. It is just this looseness of fitting that makes the Parsons concept, in both of its purposes, practicable; and if the Maxim & Bardwell patent be practicable at all, it is just this absence of looseness of fitting that makes it so. In mechanical embodiment, therefore, as well as in concept, there is a tangible something that, present in the one and absent in the other, separates the one from the other—causes the one to operate differently from the other. True, that something is what may be called "Arrangement" or "Adjustment." But where "Arrangement" or "Adjustment" makes operative and practicable what was before inoperative and impracticable, and is not itself so obvious that its utilization is not of higher merit than the mechanic's skill, "Arrangement" or "Adjustment" may be the basis of invention. In our judgment the arrangement or adjustment of the Parsons concept would never have been thought of in connection with this use, outside the Parsons concept, and it is our judgment that the Parsons concept discloses invention of patentable merit.

Our study of the alleged infringing devices convinces us that they come within the concept of Parsons and its mechanical embodiment. The transverse chains in these devices are not tight fitting and are not intended to be tight fitting, subject only to the circumferential movement that comes from hammering on the ground. What might be called the law of the structure prevents their being tight fitting. True, Parsons has no patent on the law of the structure as such. But he was the first to see the advantage of such a structure and to construct accordingly. And what he has done and patented cannot be trespassed upon with impunity simply because the law of the structure necessarily turns what, in pretense of appearance may be called a tight fitting device, into the loose fitting device. The decree of the Circuit Court is affirmed.

MIDGLEY DOES NOT INFRINGE.

(Continued from page 388)

ceeded with his metal stud idea, in one way and another.

By various citations the Examiner brought Mr. Adams to such a frame of mind that on January 8, 1897, he abandoned his metal stud idea and any broad claim covering the "interwoven wire form of bearings," and limited his application "to the combination with the cushioned tire of the interwoven wire bearing tread."

It is argued by defendant that Adams presented this idea to the public when he cut it out of his claims and devoted himself to the metal stud proposition. This is more or less persuasive, dependent upon the angle from which one views it, but I do not think the rights of the parties should turn upon that consideration.

We are still hunting for the breadth and scope of the mental concept which pervaded Dr. Adams's mind. At this last moment he is still thinking and arguing about his wire as being interwoven with the material of the tread, and in the new claim which he prepares and inserts he does not suggest the functional advantages which will accrue to his idea after the exposed portion of the interwoven wire has been worn through by frictional contact with the roadway.

He was thinking about bicycle tires, and if he had looked into the art at all, he must have found that others before him had

conceived the idea of stitching wire into a bicycle tire. Others had done it for other purposes, mainly to stiffen and strengthen their tires. It is not surprising that he should have thought that he could adapt their idea to his own use. (See Phillip's British Patent, 10,145, of 1893, and Barker's British Patent, No. 1,952, of 1888.)

That he could weave in his wire and make it useful to prevent slipping was the thought which came to him, and he proceeded to develop that thought in conformity with our statutes relating to patent discoveries. Assuming his idea to have been what I am confident it was, he complied with the statutes. Assuming it to have been what the plaintiff insists that it was, he failed completely to comply with them.

If one follows his disclosures, he could not get the wire into the tread in any other way than by weaving or stitching. There is not the faintest allusion to such a manner of treatment as the defendant applies to its coiled wire.

It is an easy thing to take such a structure as defendant's tire, made under the Midgley idea, and reason backwards to the Adams idea. By the time one reaches the Adams idea it has a very different aspect from the one reached by beginning with the art as it existed when Adams came into view, and working up to Adams through the light thus presented.

This memorandum is the outcome of many hours of careful thought and study of the case from every viewpoint. It would be a pleasant task to jot down my notions as they have come to me during those

hours, but time forbids and no useful purpose would be gained thereby.

In the light of the facts presented by the use of the heavy tires which must be applied to the ponderous motor car of the present day, a vastly different problem is presented from the one which Adams encountered from 1895 to 1898. It would be absurd, as well as highly inequitable, to so enlarge the scope of the answer which he made to his problem, that it would enable him to levy tribute upon those who have faced with courage a problem vastly larger.

He certainly failed completely to teach any one how to solve the larger problem, and for that reason alone, no matter what was in his mind, he failed to perform that end of his bargain which he was obliged to perform before he could expect the right of monopoly to which a properly prepared application, disclosure and claim would have entitled him.

Construing the patent as I feel bound to do, the defendant does not infringe.

Let the bill be dismissed with costs.

When Measurements May be Deceptive.

When gauging the amount of fuel in the gasoline tank with the elementary expedient of thrusting a stick down through the filler opening, it is well to observe whether the car is standing on level ground or whether it is inclined to one side or the other. If the car happens to be tilted, the result of the measurement may be deceptive, and the driver may find his supposedly full tank empty shortly afterward.



990,005. Non-Skid Device for Automobiles. Oscar Rash, Oakland, Cal. Filed Mar. 24, 1910. Serial No. 551,294.

A traction grip for tires comprising a cylinder, spoke engaging hooks having threaded stems slidably engaged with the cylinder, nuts engaged with the threaded stems for operation to adjust the hooks with respect to the cylinder, said cylinder having threaded recesses therein, spoke engaging members having threaded stems engaged in the recesses for adjustment of the members with respect to the cylinder, a plunger slidably engaged in the cylinder, means for holding the plunger yieldably projected, and a traction head carried by the plunger.

990,073. Front Driving Device and Steering Mechanism for Motor Vehicles. Merrick W. Sappington and Edward S. Hornbeek, Winchester, Ill. Filed Sept. 8, 1910. Serial No. 580,961.

1. In a front driving and steering mechanism for motor vehicles, a bearing member comprising an axle engaging sleeve, having a bifurcated outer end, an outer bearing section pivotally mounted on the bifurcated end of said sleeve, a hub revolvably mounted on said bearing member and having a round recess therein, a front driving axle arranged in said sleeve and having a spherical head projected into the recess in said hub, concentric rows of driving lugs arranged in the socket of said hub and having oval shaped outer faces and an annular series of driving lugs arranged on the face of said spherical axle head and having oval shaped outer faces and arranged to extend between and engage the adjacent faces of the double row of lugs in the hub socket whereby the wheel is driven and will be automatically held in straight course.

990,089. Jack. Le Roy Willour, Ashland, Ohio, assignor to The Ashland Manufacturing Company, Ashland, Ohio, a corporation of Ohio. Filed June 25, 1910. Serial No. 568,899.

1. In a lifting jack, a standard, a rack bar having slidable engagement therewith, a stud shaft rigidly mounted upon said standard, a disk rotatably mounted upon said stud shaft, having one side thereof provided with an involute thread and its opposite side provided with an annular flange carrying teeth upon its inner side, said disk being further provided upon its outer side with a hub portion cast integral therewith and rotatably mounted upon said stud shaft, a relatively small rotary adjusting lever rigidly connected with said hub portion, an operating lever having a head provided with an elongated slot to receive said hub portion, whereby said head is disposed between said disk and adjusting lever, and said operating lever carrying a tooth to engage said teeth upon said disk.

990,099. Power Transmission Mechanism. William Emil Bock, Toledo, Ohio. Filed Dec. 18, 1909. Serial No. 533,812.

1. In a power transmission mechanism, a guide, a frame mounted in said guide for rotary and longitudinal shifting movements, a drive shaft carried by said case and having a plurality of worm sections, a driven

member, means for locking the case against longitudinal movements when at one position of its rotary movements, and means for imparting rotary and longitudinal movements to the case to release the case and shift the shaft to selectively throw the worm sections into mesh with the driven member.

990,100. Power Transmission Mechanism. William Emil Bock, Toledo, Ohio. Filed Dec. 19, 1910. Serial No. 598,173.

1. In a transmission mechanism, the combination of a driven member, a plurality of worm sections shiftable relative to the driven member to selectively place the same in position to mesh therewith, and means operative to shift the driven member relative to the coacting worm section and to act thereon to oppose the thrust action of a meshing worm thereon.

990,101. Power Transmission Mechanism. Henry L. Bock, Toledo, Ohio, assignor to William Emil Bock, Toledo, Ohio. Filed Dec. 19, 1910. Serial No. 598,178.

1. In a power transmission mechanism, the combination with a driving worm, and a driven gear having roller teeth, of means for causing the roller teeth of the gear to have substantially uniform rotation relative to the gear body.

990,139. Cooling Fan for Explosive Engines. Edward A. Johnston, Akron, Ohio, assignor to International Harvester Company, a Corporation of New Jersey. Filed July 10, 1909. Serial No. 506,891.

1. A cooling fan for engines including, in combination, a fan shaft, a fan secured thereto, an engine shaft, motion transmitting means connecting said engine shaft with said fan shaft, including speed controlling mechanism, said speed controlling mechanism being actuated by the rotative movement of the fan.

990,190. Power Transmission Mechanism. William Emil Bock, Toledo, Ohio. Original application filed Dec. 18, 1909. Serial No. 533,812. Divided and this application filed May 27, 1910. Serial No. 563,730.

1. In a mechanism of the class described, the combination of a driven member, a plurality of gears revolvable bodily about a common axis which is angled relative to the axis of said member to permit a selective meshing of the same with the driven member, and means for driving the meshing gear.

990,203. Ball Bearing. Hermann Barthel, Schweinfurt, Germany. Filed July 11, 1910. Serial No. 571,451.

1. In a ball bearing, the combination with a plurality of balls, of a cage comprising two rings of U-shaped section secured back to back and having apertures for receiving said balls.

990,204. Ball Bearing. Hermann Barthel, Schweinfurt, Germany. Filed July 11, 1910. Serial No. 571,452.

1. A ball bearing of the character described, including a ring U-shaped in section, a second ring having lateral lugs engaging the first referred to ring and inwardly bent lugs forming abutments for the first referred to ring, said first referred to ring being pressed against said inwardly bent lugs, and concentric members between which are received said ring members.

990,214. Tire. Edward P. Beach, Freehold, N. J. Filed Oct. 20, 1910. Serial No. 588,014.

The combination of a vehicle wheel having a felly, with a resilient sheet metal container which is annular and has its outer periphery open, a resilient tread having sheets of stiff material of unequal widths secured to its inner side to form recesses on the opposite sides thereof, annular rings to enter the recesses and to bear on the container, screws securing the rings to the container, and an inner tube in the container and the tread when inflated.

990,249. Starting Vaporizer for Explosive Engines. Joseph F. Garcia and Harry Hertzberg, Brooklyn, and Abbot A. Low, Horseshoe, N. Y.; said Garcia and Hertzberg, assignors to said Low. Filed Oct. 7, 1907. Serial No. 396,158.

1. In a starting vaporizer, a mixing chamber, an air inlet thereto, a hollow vaporizing member composed of electrical resistance material, said member being open at its respective ends, means whereby an electric current is adapted to flow through said resistance material for directly heating said member, means for supplying a liquid combustible to one open end of said vaporizing member, and a baffle positioned externally to said vaporizing member and adjacent the other open end thereof.

990,263. Automobile. Louis Herman, Hillsboro, Mo. Filed Oct. 1, 1910. Serial No. 584,946.

1. The combination, with a frame, two driving shafts journaled longitudinally in the frame and arranged side by side, and means for revolving the said shafts; of friction driving disks secured on the said shafts, two cross shafts arranged in line with each other, slidable friction driving wheels splined on the said cross shafts and bearing against the said disks, beveled toothing pinions secured on the said cross shafts, steering levers pivotally supported by the said frame and arranged at the outer ends of the cross shafts and provided with axle spindles, road wheels mounted on the said spindles, beveled toothing pinions secured to the said road wheels, beveled toothing wheels connecting the said pinions in pairs, a connection between the steering levers, and rods operatively connecting the friction driving wheels with the steering levers, so that the road wheels are driven at unequal speeds in rounding curves.

990,293. Shock Absorbing Device. Emile Rimailho, Neuilly-sur-Seine, France, assignor to Societe Anonyme des Suspensions et Roues Flexibles, Paris, France. Filed Dec. 30, 1909. Serial No. 535,673.

1. In a shock absorber of the character specified, the combination with a member adapted to be secured to a fixed part of a vehicle, of a second member depressible relatively to said first named member, a shock absorbing element interposed between said members and becoming operative when the second member is depressed, a conical body movable with said second member, and a plurality of wedges disconnected and in frictional contact with said conical body and adapted to retard its return to initial position.

990,387. Tire Remover. Stephen C. Plant, Brookline, Mass. Filed Feb. 10, 1911. Serial No. 607,757.

1. A tire iron comprising a handle terminating in a claw, said claw being provided with a lateral extension arranged to co-operate with the inner side of the shoe, a hook pivoted to said handle and arranged to rest on the outer side of the wheel rim

to afford a fulcrum for the tire iron, and means having sliding engagement with said hook for preventing said lateral extension from slipping upwardly along the shoe.

990,456. Automobile Tire. Henry E. Rechner, East Toledo, Ohio. Filed Nov. 19, 1910. Serial No. 593,215.

1. In a device of the character described, a metallic spring clip formed with a curved portion adapted to be sprung over a tire, opposite internal flanges adapted to engage the tire, curved portions beneath said flanges and curved portions depending from said curved portions and each forming an outwardly curved flange.

990,462. Combination Lamp and Sign. John Dean Steward, Atlanta, Ga. Filed Nov. 11, 1909. Serial No. 527,489.

1. In a combined lamp and sign, the combination with a lamp body having an open front and side light-emitting means, a closure for the open front of the lamp body having a transparent sign, a bracket for supporting the lamp body, and side signs having supporting members supported from said bracket, said side signs being disposed across the path of rays from the side

light-emitting means and also arranged to be seen from the front of the lamp.

990,531. Antislipping Device. Oscar Falkenwalde, Baltimore, Md. Filed Oct. 21, 1910. Serial No. 588,335.

1. An anti-slipping attachment for vehicle wheels comprising a clamping device to clamp around the spoke of the wheel, said clamping device including projecting arms to embrace the wheel felly, said arms terminating in apertured ears, a tread engaging member and link rods pivoted between said ears and connected to said tread engaging member, said link rods being of a length to extend substantially half way upon the side of the tire.

990,541. Combined Handle and Lock for Vehicle Doors. Louis W. Gates, West Haven, Conn., assignor to C. Cowles & Co., New Haven, Conn., a Corporation. Filed Jan. 26, 1911. Serial No. 604,781.

1. A combination lock and handle for vehicle doors comprising a socket, said socket formed with a locking notch, a push button arranged in the socket opposite said locking-notch, a handle having a shank adapted

to enter said socket, a bolt mounted in said shank, key-operated mechanism mounted in said handle and adapted to move said bolt into its unlocked position, which bolt may also be thrown into its locking position by the push button.

990,604. Process and Apparatus for Scavenging Internal-Combustion Engines. Elbridge W. Stevens, Baltimore, Md. Original application filed July 16, 1909, Serial No. 507,925. Divided and this application filed Aug. 6, 1909. Serial No. 511,532.

1. The process of scavenging an internal combustion engine, which consists in introducing into the combustion chamber air currents at points of entry concentric to the axis of the cylinder and following this with other air currents also concentric to the axis of the cylinder but in a different coaxial zone.

990,618. Sliding Gear Transmission Mechanism. Alexander Winton and Harold B. Anderson, Cleveland, Ohio, assignors to The Winton Motor Carriage Company, Cleveland, Ohio, a Corporation of

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Ohio. Filed Apr. 21, 1906. Serial No. 313,030.

1. A sliding gear transmission mechanism including a driven shaft, a gear fast thereto, a counter-shaft, a sliding gear, a gear fast to said counter-shaft and in mesh with said driven shaft gear, a driving shaft, variable speed transmission gears carried by said driving and counter-shafts, one of the driving shaft gears being loose thereon and adapted to be locked to the driving and driven shafts when moved in one direction, and to mesh with one of the counter-shaft speed gears and locked to its own shaft when moved in the other direction, and operating means to move the said counter and driving shaft gears into engagement, the parts operating as and for the purpose described.

990,651. Wheel Antiskidder. Henry Heer, Ogden, Kans. Filed July 23, 1910. Serial No. 573,533.

1. An anti-slipping device for soft tread vehicle wheels, the same comprising pneumatic side pieces, and cross pieces connecting the pneumatic side pieces.

990,664. Vehicle Wheel Tire. Hugh Mulholland, New York, N. Y. Filed Dec. 20, 1910. Serial No. 598,277.

1. In a vehicle tire, the combination with a metallic band, of a plurality of rubber tread blocks positioned one on each plate, said channels in said plates being adapted to interlock with the base portion of such tread block, and means for securing the plates and blocks in operative position on the metallic band.

990,730. Engine Starting Device. Lloyd Bellemont Hallock and George Thomas Keen, New York, N. Y. Filed June 29, 1910. Serial No. 569,465.

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1. An engine starting device, comprising a gear wheel on the engine shaft, a pinion adapted to mesh with the said gear wheel, a pinion shaft carrying the said pinion, a manually controlled member slidably connected with the said pinion shaft for rotating the latter, and a rocking bearing in which the pinion shaft is mounted.

990,752. Valve Gear of Internal Combustion Engines. Frederick William Lanchester, Edgbaston, England. Filed Jan. 18, 1910. Serial No. 538,629.

1. In an internal combustion engine, in combination, a sleeve valve, a working piston reciprocating within said sleeve valve, and means for displacing the point of mid travel of said sleeve valve.

990,756. Shock Absorber. John Lend, Chicago, Ill., assignor to Multi Mfg. Co., Chicago, Ill. Filed Sept. 26, 1910. Serial No. 583,830.

1. In combination with a vehicle spring, a shock absorber comprising an upper section and a lower section hinged together at their inner meeting ends, the upper section being secured to the central portion of the vehicle spring, and the lower section being secured to a wheel axle, and an absorber spring positioned between and contacting both the upper and lower hinged sections, substantially in alignment with the central portion of the vehicle spring adjacent to the axle, substantially as described.

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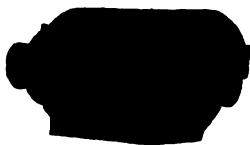
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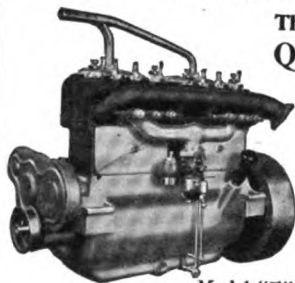
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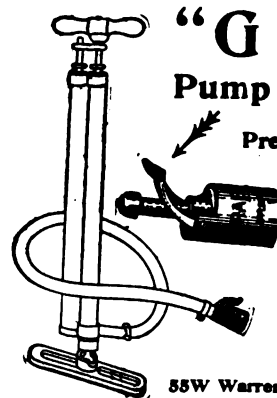
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MOTOR THE WORLD

Vol. XXVIII.

New York, U. S. A., Thursday, August 10, 1911.

No. 7

PREST-O-LITE UPHELD IN TEXAS

Court Disagrees With Chicago Judgment and Grants Perpetual Injunction—Peculiar Status of the Patent Involved.

The Prest-O-Lite patent, No. 664,383, which within the course of one week of the present year, was the subject of two directly opposing opinions of two United States Circuit Courts, has been upheld by Judge Meek, sitting in the United States Circuit Court for the Northern District of Texas. He rendered his decision in the case of the Prest-O-Lite Co. against Charles E. Reib, doing business as the Searchlight Co. of Texas.

Reib claimed that he was operating under license issued by the Searchlight Gas Co. of Chicago to use its patent, but the court sustained the Prest-O-Lite allegation that the Searchlight patent is an infringement of their rights to not only the gas tank and the absorbent or solvent employed, but also their method of recharging the tanks. Accordingly Judge Meek granted a perpetual injunction against the Searchlight Co. of Texas and C. E. Reib, which forbids them to recharge Prest-O-Lite tanks—which was their chief business—and orders an accounting made of their profits. Damages will be awarded to the Prest-O-Lite company on the basis of such accounting.

The action of Judge Meek in sustaining the validity of the Prest-O-Lite patent, is in line with the judgment rendered by the United States courts in Wisconsin and Michigan, which, however, are directly opposed to the opinion of the United States Circuit Court in Chicago, which, some three months since, in the case of the Prest-O-Lite Co. against the Searchlight Gas Co. itself, ruled that the American patent had expired and that the Prest-O-Lite tank and all that pertains to it, were public property. This latter decision was handed down during the same week that the patent was

sustained in the Michigan circuit; a copy of it was rushed to the latter but that court declined to alter its opinion.

Woodard Leaves Diamond for Century.

Harvey J. Woodard, for the past five years manager of the Diamond Rubber Co. of New York, has resigned that office and on August 15th will become general manager of the Century Tire Co., whose factory is in Plainfield, N. J. Woodard's office, however, will be in New York. The Century company has been making what is termed a "custom-made" tire—one held to be better than the general run of tires and commanding a higher price—and although not generally known, its backing is of the sort that should assure it a position which Woodard's undoubted experience and energy should assist it in attaining. The president of the company is Daniel F. Shea, the partner of Thomas F. Ryan, the traction magnate; Allen Ryan, Mr. Ryan's son, is vice-president. The Barusch brothers, the New York bankers, also are interested in the enterprise. With such sponsors and such resources, Woodard's entry into the company presages a policy of real and immediate aggressiveness.

Enjoins Griffith's Use of "Imperial."

Having proved its right to the trademark "Imperial," as applied to tires, the McGraw Tire & Rubber Co., of East Palestine, O., has secured an injunction restraining its use by Edward C. Griffith, of New York, or anyone connected with him. Griffith has three company titles at his command and the injunction applies to all of them, viz.: Automobile Tire Co., Griffith Tire & Rubber Co. and Imperial Tire Co.

Schurmeier Trucks Prove Unprofitable.

The Schurmeier Motor Co., of St. Paul, Minn., which began the manufacture of trucks about a year ago, has filed a petition in bankruptcy. Its liabilities are \$51,899.79 and its assets \$33,288.34. The largest creditor is F. I. Whitney, president of the company, who as an individual holds its notes for \$25,361.08.

QUESTIONED QUALITY OF RUBBER

As a Result, Rubber Brokers Sue Michelin for \$157,925—Sheriff Levies Attachments, Which Soon Are Released.

Growing out of a difference of opinion concerning the quality of several shipments of rubber, early this week five attachments were placed on New York assets of the Michelin Tire Co., of Milltown, N. J., all of which, however, were released within 48 hours. The proceedings were the result of a suit against the Michelin company brought by Poel & Anderson, New York rubber brokers, for the recovery of \$157,925, which they claim as damages for alleged breach of contract and failure to accept several shipments of rubber, and a balance due on deliveries which had been made. The New York brokers charge that the Michelin company repudiated the contracts, which were made some time ago, at prices ranging from \$1.76 to \$1.98 per pound. The present price of rubber is about \$1.13.

When the Sheriff of New York county received the attachments he levied on the funds of the Michelin company on deposit in the Equitable Trust Co. and the National City Bank, amounting to \$202,141.30. A keeper also was placed in charge of the Michelin branch at 1763 Broadway, but he was quickly relieved and the attachments released when satisfactory guarantees were given by the Michelin company.

While newspaper reports made it appear that the trouble was due to the great drop in the price of rubber, which has occurred within the past year or so, J. Hauvette-Michelin, vice-president of the Michelin company, yesterday stated to a Motor World man that the legal proceedings were due solely to a difference of opinion concerning the quality of the rubber, some of which was delivered six months or more ago and which still remains unused in the Michelin warehouse

at Milltown, because of its alleged inferior quality.

"When we placed the contracts," said Mr. Hauvette-Michelin, "we specified the Michelin quality of rubber. The stock which was delivered to us we did not consider up to our standard and we have refused to accept or use it. The alleged breach of contract is due solely to a difference of opinion as to quality and not price, and we are quite content to have the courts pass on the matter."

Fight for Commission Leads to Law.

There was entered in the New York Supreme Court last week a judgment for \$3,329.87 in favor of the E. R. Thomas Motor Branch Co., of New York, against the S. & V. Motor Co., of Brooklyn, the evidence in the case showing that on March 29th last the S. & V. company gave to the plaintiffs a check for \$3,282.09 in payment for a Thomas car valued at \$4,000, less 20 per cent. commission, and that the check had been stopped before it was cashed. When the Thomas company entered suit for the amount the S. & V. company filed a counterclaim alleging that on February 10, 1910, the Thomas company contracted in writing to give the defendants the exclusive sale of all Thomas cars in Brooklyn and to pay a commission of 20 per cent. of the gross price, and that notwithstanding between December 1, 1910, and April 14, 1911, the Thomas Branch company sold to residents of Brooklyn ten cars, for which they received \$40,000, of which amount the S. & V. company claims 20 per cent., or \$8,000, as its commission. The Thomas Branch company entered a general denial, and the attorneys for both sides consenting, judgment was entered for \$3,282.09, plus interest and costs. The S. & V. company, which is winding up its affairs, has entered suit for the \$8,000, which it claims as its due, and this suit still is pending.

Readjusting Maytag-Mason Affairs.

In an effort to readjust its finances and to effect reorganization a committee of creditors has interested itself in the affairs of the Maytag-Mason Motor Co., of Waterloo, Ia. Pending the result of these efforts the factory has shut down. It is stated that the company's liabilities exceed \$370,000, but that its assets total \$600,000. The chief creditors are former Senator F. L. Maytag and William Galloway, a large manufacturer of Waterloo, who has endorsed the company's paper for large amounts.

Spokane Jobbers Forming Association.

Nine automobile tire dealers and accessory jobbers of Spokane, Wash., have formed the Spokane Automobile Accessories Association. No officers have been elected as yet but the affairs are in the hands of Fred Kitson, of Child, Day & Churchill, and Louis Cavanaugh, of the

Chanslor & Lyon Motor Supply Co., who are drafting the constitution and by-laws on lines similar to those of the Spokane Retail Automobile Dealers' Association. The members are: Nott-Atwater Co., Washington Rubber Co., Child, Day & Churchill, Chanslor & Lyon Motor Supply Co., Interstate Rubber Co., W. H. Alexander, William S. Smith Rubber Co., Engbam Tire and Rubber Co. and the Diamond Rubber Co.

Changes Among Prominent Tradesmen.

E. E. McLeish has been appointed advertising manager for the Paige-Detroit Motor Co., of Detroit. Previously he served the Regal Motor Car Co. in the same capacity.

George S. Simpson has been appointed manager of the Fisk Rubber Co.'s branch in Atlanta, Ga. Previously he was a member of the firm Poling & Simpson, of Baltimore, Md.

E. C. Johnson has resigned the vice-presidency and sales management of the Louis J. Bergdoll Motor Co., of Philadelphia, and entirely retired from participation in its affairs.

E. L. Jones, who has been in the Remy service in the Middle West for the past two years, has been appointed manager of the Remy Electric Co.'s Indianapolis branch. He succeeds John G. Wallick, who has gone into the retail trade in that city as manager of the Meriden Automobile Co.

C. F. Krueger, who previously was connected with the Studebaker interests, has been elected vice-president and general manager of the Standard Electric Car Co., of Jackson, Mich., which recently was organized and which will place a popular-priced shaft-driven electric on the market about September 1. J. D. Forrer, a former Westinghouse engineer, also has been added to the Standard company's staff.

Harry W. Anderson, for the past two years a district manager for the Regal Motor Car Co., has been appointed Southern sales manager for the American Motors Co., of Indianapolis, and will have full direction of the sales of the American underslung car in all of the Southern states except Texas. Anderson for many years was engaged in the machinery business in the South and "knows it like a book."

Indiana Car Manufacturers Organize.

The Indiana automobile manufacturers who took part in the Four States tour to promote the products of the Hoosier State have formed the Indiana Automobile Manufacturers' Association. The officers for the first year are: President, Frank Smith, of the Maxwell company, who was chairman of the Four States tour; first vice-president, Will H. Brown, president and general manager of the Mais Motor Truck Co.; second vice president, V. F. Whitesides, of the Whitesides Motor Truck Co.; third vice president, George M. Dickson, general manager of the National Motor

Vehicle Co.; fourth vice president, Howard C. Marmon, of the Nordyke & Marmon Co.; fifth vice president, George A. Weidley, vice president of the Premier Motor Mfg. Co.; secretary, P. P. Willis, of the Mais Motor Truck Co.; treasurer, Fred N. Coates, of the Lexington Motor Car Co.

New York City Settles Mitchell's Claim.

Judgment in favor of the Mitchell Motor Co., of New York, for \$3,223.40 has been entered against the City of New York, the amount representing settlement of a claim of the Mitchell company for the use of two runabouts and two touring cars, valued at \$5,822.50, which were delivered to the city on March 26th, 1909. Since that date the Mitchell company alleged that the cars had been used continuously and had been damaged by such use to the extent of upwards of \$2,500. Their demand for the return of the cars and payment of the amount of damage and depreciation had been ignored by the City Comptroller, hence the suit, which led to the judgment. When the case was brought to trial the Acting Corporation Counsel of the city offered the Mitchell company \$3,223.40, without interest or costs, and the offer was accepted and the case settled.

Bosch Now Taking On Distributors.

Departing from its former policy of handling all of its sales from its headquarters in New York or through its branch houses, the Bosch Magneto Co. now is appointing territorial distributors wherever such distributors can prove themselves qualified to handle the business. A striking sign for display by the distributing houses goes with each appointment.

Kelly-Racines Placed on Pacific Coast.

The Chanslor & Lyon Motor Supply Co., of San Francisco, has been appointed Pacific Coast distributor of the Kelly-Racine tires, made by the Kelly-Racine Tire Co., of Racine, Wis. The Chanslor & Lyon company maintains branches in the several more important cities on the coast and will carry full stocks of the goods and push them aggressively.

Simplex Going to New Brunswick.

Due largely to labor troubles in New York, the Simplex Automobile Co. will remove, about November 15th, to New Brunswick, N. J., where it has begun the construction of a reinforced concrete factory which will cost \$100,000. It will be a two-story structure, 66 x 392 feet, yielding over 40,000 square feet of floor space.

Standard Welding Takes Over West.

Having terminated its contract with L. F. McClernan, of Chicago, the Standard Welding Co., of Cleveland, henceforth will handle its Western business directly from the factory. The company's own men will cover the territory previously handled by McClernan.

JUNE GIVES IMPORTS SLIGHT UPLIFT

Three More Cars Imported, but Net Loss Still Continues—Shrinkage During Fiscal Year Nearly \$1,000,000.

June, 1911, contained more hope for the importing trade than any month has held during a period of several years, or since the imported car lost its hold in this country. The hope rests in the fact that three more cars were brought in in June, 1911, than were imported during the corresponding month of the previous year—117 cars, as against 114—their respective values being \$256,514 and \$233,229. The increase, however, is more apparent than real, the month's decline in the value of parts much more than offsetting the gain in cars. The imports of parts dropped from \$75,569 in June, 1910, to \$15,748.

Although the total number of cars and their value practically has remained the same as in the same period of last year, important and significant shifts took place in the respective numbers, each of the importing countries has sent to America. France was the only loser, registering a falling off of 32 cars, or \$53,144 worth, while Germany showed a corresponding increase of 24 cars, valued at \$40,646. Small gains also were recorded by the United Kingdom, Italy and Other Countries.

The figures for the fiscal year ending June 30, 1911, show a loss of 605 cars, valued at \$953,603; Germany, France and Italy being on the losing side, with England and Other Countries registering small increases. During the year there were imported 888 cars, valued at \$1,898,843, as compared with 1,473 cars, valued at \$2,851,446 in the same period of 1910.

Horns are Horns, Declare Appraisers.

Shipping the rubber parts of an article in one package and the metal parts in another does not change the nature of the complete article or serve to lessen the duty on either part of it. This, in effect, is the decision of the Board of General Appraisers for the Port of New York, which was rendered last week on an appeal filed by M. L. Eckstein & Co. involving the duty levied by the Collector of the Port on a shipment of automobile horns, the parts of which had been packed separately. In the decision the Appraisers say:

"The invoices in these cases describe the goods as 'automobile horns' and 'metal-mounted rubber bulbs.' The shipments comprise horns and bulbs coincident in number, arriving for the same importer, on the same steamer, and these horns with the bulbs therefor constitute in fact complete units. The collector treated these articles as entireties and assessed duty thereon at 45 per cent. ad valorem under the provi-

sions of paragraph 199, tariff act of 1909. The importers claim that the rubber bulbs are separately classifiable as manufactures of India rubber (paragraph 483). The board passed on articles of this precise kind here in question in G. A. 7,219 (T. D. 31,567), and the ruling in that case is decisive of the issue here raised. Following the decision referred to we overrule these protests and affirm the collector's assessments in question."

Saxon Lamp in Hands of Receiver.

Alleging that the company is insolvent and had made preferential payments and transferred merchandise and accounts, three creditors on Monday last, 7th inst., filed a petition in bankruptcy against the Saxon Lamp Co., 530 West Twenty-eighth street, New York, and Alan Fox has assumed charge as receiver. The petitioning creditors are the Clover Paper Co., \$300; New York Buff Co., \$115, and Rockwell C. J. Barker, \$115. Liabilities are said to be \$12,000 and assets \$1,500. The business was started in 1889 by Herman Saxon and was incorporated in May, 1909, with capital stock \$5,000, which was increased to \$50,000 in March, 1910, when Saxon became president. Business has been dull for the past six months and the plant, it is said, has been closed for a month or more.

Creditors Make Charges Against Rothstein.

The Rothstein Mfg. Co., which produced automobile supplies at 1955 Park avenue, New York, has been petitioned into bankruptcy by these creditors: Electrore Mfg. Co., \$230; Phoenix Tube Co., \$235, and Smith & Loughlin, Inc., \$87. It is alleged that the company is insolvent and has removed and concealed assets of over \$1,000, and on July 25 permitted a creditor to obtain a judgment against it. The probable assets are estimated at \$5,000. The company was incorporated on March 23, 1908, with capital stock of \$500.

Mosler Building Factory in Yonkers.

A. R. Mosler & Co., makers of the Spitfire spark plug, have commenced the erection of a factory building on 241st street, Wakefield Park, Yonkers, N. Y., which will be ready for occupancy on December 1st, on which date the present Mosler plant on West 29th street, New York City, will be vacated. The factory in Yonkers will be equipped for all manner of machine work and will permit Mosler & Co. to produce several new lines of goods.

Nebraska Factory to Change Location.

Ground has been broken in Nelson, Neb., for a concrete factory building, 70 x 100 feet, which will be occupied by the Angus Automobile Co., of Angus, Neb., in which residents of Nelson have purchased a controlling interest. The machinery, which will be added to, will be removed from Angus as soon as the building is ready.

WHEN LEARNED JUDGES DISAGREE

Sustaining Grant Tire, Judge Ray Declares Indiana Decision Not Binding—Discusses Interference with Customers.

Although the Grant patent, No. 554,675, covering the solid rubber tire in which separate and independent retaining wires are employed, has been held to be valid by the Supreme Court of the United States, that decision did not put an end to the litigation in which it so long had been involved. It again was the issue in a suit brought by the Grant interests against William Seim and Gustave Reissig, which was heard by Judge Ray, sitting in the United States Circuit Court for the Northern District of New York, in Utica, and which just has resulted in further affirmation of the Grant rights.

The case was unusual and of wide importance in that it involved tires alleged to have been made in Kokomo, Ind., in which circuit the United States court several years ago—and, of course, before the Supreme Court rendered its decision in April last—had ruled that the Grant patent was invalid, which tires were sold in New York state to Seim and Reissig by the Diamond Tire Co. of New York, for which territory James D. Hurd held an exclusive license under the Grant patent issued by the owners thereof, the Consolidated Rubber Tire Co. and the Rubber Tire Wheel Co., who, with Hurd, were the complainants in the case. They applied for a temporary injunction restraining Seim and Reissig and the Diamond Rubber Co. petitioned to be made a party defendant. Judge Ray ruled in favor of the complainants on all points and also broadly intimated that the tires in the case had not been made in Kokomo; in vigorous language he held that though the decision of the Circuit Court in Indiana may permit the sale and use in that circuit of tires made by the Kokomo Rubber Co., it does not protect the sellers or users of Kokomo tires in any other circuits. While there is nothing novel or surprising in this decision, Judge Ray carried his opinion further and expressed the belief that the decree in the Kokomo case "conferred and confers no right on the Kokomo company to perpetually and forever infringe the Grant patent now that it has been held valid by the Supreme Court of the United States, whose decision must be the supreme law of the land."

From the purely commercial standpoint the rights or scope of a patentee to interfere with the business of a maker of an alleged infringing device by bringing suits against the latter's customers, which point was quite thoroughly discussed by Judge Ray, is perhaps of wider and more vital interest than the main issue. Pointing out



that "there is a wide distinction between holding that a patent is invalid and holding that a certain manufacturer does not infringe such patent," he indicates wherein such actions may constitute wrongful interference with a man's business and also wherein they may be justifiable.

The decision in full is as follows:

This is a suit in equity brought by the complainants to restrain the defendants, Seim and Reissig, from infringing what is known as the Grant patent, dated February 18, 1896, No. 554,675, and issued to Arthur W. Grant for "Rubber-tired Wheel." The validity of this patent has been adjudicated in certain circuits and its invalidity has been adjudicated in other circuits. It was held valid in the second circuit by the circuit court and also by the Circuit Court of Appeals in Consolidated Rubber Tire Co. & Rubber Tire Wheel Co. v. Diamond Rubber Co. of New York. In this case on the petition of the Diamond Rubber Company a writ of certiorari was granted and the case taken to the Supreme Court of the United States where the patent was held valid and infringed. See Diamond Rubber Co. of New York, petitioner, v. Consolidated Rubber Tire Co. and Rubber Tire Wheel Co., decided April 10, 1911 (not yet reported).

So far as this suit between the parties is concerned the patent must be considered valid. It has the presumption of validity to start with and the decision of the Supreme Court of the United States sustaining it. However, in Goodyear Tire and Rubber Co. et al. v. Rubber Tire Wheel Co., sixth circuit, the patent was held invalid and in Rubber Tire Wheel Co. v. Victor Rubber Tire Co., sixth circuit, it was also held invalid. In a case in the seventh circuit, District of Indiana, where the Kokomo Rubber Company was defendant, the patent was held invalid. This last case did not go to the Circuit Court of Appeals.

The defendants here, Seim and Reissig, reside and do business in the city of Albany, State of New York, second circuit. It seems to be their contention that they purchase the alleged infringing articles in which they deal and which they sell from or through the Diamond Rubber Company of New York, which in turn obtains them from the maker, the Kokomo Rubber Company. In the case above referred to in the Circuit Court of Appeals, second circuit, and which went to the Supreme Court of the United States as stated, the Circuit Court of Appeals inserted the following in the decree:

"Ordered, Adjudged and Decreed

"That the decree of said Circuit Court be and it hereby is amended by inserting the following clause:

"Nothing in this injunction shall prevent or is intended to prevent or enjoin this defendant from handling, using and selling rubber tires and rims covered by the Grant patent, manufactured by the Goodyear Tire & Rubber Company, having a right to manufacture, use and sell such tires, under a judicial decree in the Federal Courts of the Sixth Circuit, or manufactured by the Kokomo Rubber Company, having a right to manufacture, use and sell such tires under a judicial decree in the District of Indiana, Seventh Circuit; or manufactured by the Victor Rubber Tire Company, under a judicial decree in a litigation in the Federal Courts in the Sixth Circuit, where in such litigations it has been judicially determined that the said Grant patent is invalid and void."

"And as so amended is affirmed with costs taxed at the sum of \$31.95."

The defendants here as well as the Diamond Rubber Company of New York, contend that inasmuch as the decree was affirmed with this clause therein, there has been an adjudication that the Diamond Rubber Company has the right to use and sell rubber-tired wheels and the various parts which go to make up the rubber tired wheel or the patent manufactured by the Goodyear Tire and Rubber Company, or by the Kokomo Rubber Company, or by the Victor Rubber Tire Company, the patent having been held invalid as to them. The contention is that this right extends to all dealers and users

(Continued on page 487.)

Detroit, Mich.—Richardson Auto Garage Co., under Michigan laws, with \$2,500 capital; to operate a garage.

Rock Island, Ia.—The Black Hawk Motor Co., under Iowa law, with \$50,000 capital; to manufacture motors, motorcycles, etc. Corporators—H. S. Dickinson, Ardo Mitchell.

Sheffield, Ala.—Tri-Cities Garage Co., under Alabama laws, with \$20,000 capital; to operate a garage and repair shop. Corporators—E. E. Doud, E. C. Carter, Mrs. E. C. Carter.

Milwaukee, Wis.—Smith-Hoppe Auto Co., under Wisconsin laws, with \$15,000 capital; to deal in automobiles and accessories. Corporators—Jesse A. Smith, A. C. Hoppe, C. C. Russell.

Chicago, Ill.—W. A. Paterson Co., under Illinois laws, with \$2,500 capital; to manufacture and sell automobiles. Corporators—Edgar C. Fredy, William B. Herrick, Lyle A. Closter.

Dallas, Texas.—The Auto and Carriage Supply Co., under Texas laws, with \$3,000 capital; to deal in accessories and supplies. Corporators—George T. Mahan, Harry Wheatley, M. Zauf.

Indianapolis, Ind.—Fashion Garage & Auto Co., under Indiana laws, with \$10,000 capital; to operate a garage and deal in automobiles. Corporators—B. D. Gilson, W. L. Higgins, J. L. Edwards.

Watertown, N. Y.—Watertown Transportation Co., under New York law, with \$25,000 capital; to operate motor buses and automobiles. Corporators—D. M. Anderson, W. F. Herring, J. M. Gamble.

Muskogee, Okla.—Hudson Motor Sales Co., under Oklahoma law, with \$5,000 capital; to deal in automobiles, motor trucks and accessories. Corporators—J. V. Thomas, E. J. Phelps, C. A. Lockard, Jr.

Denver, Colo.—The Auto Hire Co., under Colorado laws, with \$10,000 capital; to do an automobile transfer and livery business. Corporators—R. E. Oakes, A. H. De Guston, Homer Elliott, all of Denver.

Toledo, Ohio—Saxon Mfg. Co., under Ohio laws, with \$10,000 capital; to deal in automobile supplies. Corporators—Herman Saxon, Charles G. Cunningham, Richard D. Logan, T. A. Koster, Phyllis Sackett.

Cleveland, Ohio.—The Abbott-Detroit Sales Co., under Ohio laws, with \$20,000 capital; to deal in automobiles. Corporators—O. D. Eshelman, R. E. Deacon, R. E. McClellan, Ada N. Jackson, F. E. McClellan.

New York City, N. Y.—Brown Speedom-

eter Co., under New York laws, with \$200,000 capital; to manufacture speedometers. Corporators—A. B. LaFar, G. P. Cooper, of New York City; W. L. Brower, of Maplewood, N. J.

Syracuse, N. Y.—The Lane Auto Association, Inc., under New York laws, with \$10,000 capital; to manufacture and deal in motor vehicles and maintain a garage. Corporators—Anna L. Lane, Bradley J. Lane, Earl R. Elmer.

Toledo, Ohio.—The Saxon Manufacturing Co., under Ohio law, with \$10,000 capital; to deal in automobile accessories and supplies. Corporators—Herman Saxon, Charles G. Cunningham, Richard D. Logan, E. A. Koster, Phyllis Hackett.

Chattanooga, Tenn.—Auto Electric Co., under Tennessee laws, with \$10,000 capital; to do general electric work and maintain an electric garage. Corporators—E. B. Walzl, W. B. Royster, A. C. Carroll, A. C. McClellan, Frederick Geddings.

Warwarsing, N. Y.—The New York Fritchie Co., under New York laws, with \$200,000 capital; to manufacture and deal in all kinds of motor vehicles. Corporators—D. O'Connor, A. Sheard, H. A. Fluckiger, all of New York City.

St. Louis, Mo.—St. Louis Truck and Manufacturing Co., under Missouri laws, with \$5,000 capital; to manufacture and sell motor trucks and other vehicles. Corporators—Rosa A. Koehler, 28 shares; Frank G. Koehler, 2 shares; George H. Martin, 20 shares.

Louisville, Ky.—Victor Motor Accessories Co., under Kentucky laws, with \$2,500 capital; to deal in automobile accessories and other equipment for motor vehicles. Corporators—D. W. Reinohl, 7 shares; Clarence F. Ott, 9 shares; Alfred W. Ott, 9 shares.

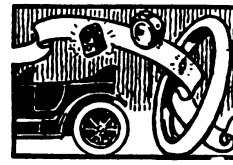
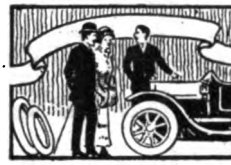
New York City, N. Y.—Cab & Taxi Co., under New York laws, with \$1,700,000 capital; to acquire business of the above named company, to do livery and motor service. Corporators—G. H. Fitzgerald, Brooklyn; E. C. Kaestner, J. F. Manheimer, New York City.

Elmira, N. Y.—American Standard Auto-Car Lift Co., under New York laws, with \$25,000 capital; to manufacture device for lifting and supporting wheels of automobiles and motorcycles. Corporators—R. D. Webster, Dr. M. E. Saefuse, P. C. Thompson, all of Elmira.

Toledo, Ohio.—The American Motor Truck Delivery Co., under Ohio laws, with \$150,000 capital; to operate motor trucks under the name of the A. M. T. Delivery. Corporators—E. A. Mallory, C. E. Tucker and Clarence B. Hadden, of Toledo; Dwight Smith and M. D. Neff, of Findlay, Ohio.

Increase of Capital.

Galion, Ohio.—The Ditwiller Manufacturing Co., from \$50,000 to \$100,000.



Charles Hopkins has opened a garage and repair shop in Manistique, Mich.

Potomac, Ill., soon will have its first garage. Wilbur H. Goodwine is building it.

William G. Krauthoeffer is building a garage on North avenue, near Buffum street, Milwaukee, Wis. It will cost \$2,500.

Frank R. Houghton is erecting a three-story garage at 246 West Sixtieth street, New York City, N. Y. It is to cost \$15,000.

Eli Mead, who conducts a livery stable in Westport, Conn., has added automobiles to his stock. He has built a garage adjoining his stable.

O. E. Gorderman has opened a two-story brick and concrete garage on West Franklin street, Hagerstown, Md. It will house Hudson and Maxwell cars.

H. W. Hopewell and E. C. McCormick have formed a company with \$10,000 capital for the purpose of operating an automobile livery service in Sioux City, Ia.

The La France Garage Co., Elmira, N. Y., which was incorporated last week, has opened a garage and repair shop at the corner of Carroll and Fox streets.

George A. Bond has opened salesrooms in Kansas City, Mo., where he will display Krit cars. In addition to dealing in cars he will sell supplies and accessories.

The Utica (N. Y.) Auto Supply Co. has opened a store at 231 Genesee street for the sale of accessories and supplies. The company also will handle the Krit car.

Earle C. Anthony is constructing a four-story, reinforced concrete garage at 1000 South Hope street, Los Angeles, Cal. The building will cost, when finished, \$70,000.

The Tri-Cities Garage Co. has been organized in Sheffield, Ala., with a capital of \$20,000. E. C. Carter is the manager of the new concern, which will operate a general garage and livery business.

The Foley-Thompson Automobile Machine Shop is the style of a new company which has "opened up" in Mobile, Ala. It will make parts and replacements for all kinds of motor cars and do a repair business.

The Louisiana (Mo.) Auto Co. has discontinued business and its building, including stock and equipment, is for rent. St. John and Orthwein, the partners, have been running the business at a loss for some time.

John M. Leaman, who for four years was connected with the Jonas Automobile Co., Milwaukee, Wis., has gone into business on his own account and opened salesrooms

in the Majestic building. He will handle Mack trucks.

The West Side Garage Co., of Green Bay, Wis., has found its quarters too crowded and moved into a more spacious building on North Broadway. The new structure is 100 x 45 feet, and will accommodate twenty-five cars.

H. J. and E. S. Linesmith, who conducted a garage and salesroom at Lima, Ohio, under the style H. J. Linesmith & Co., have filed a voluntary petition in bankruptcy. Their assets are \$4,178 and their liabilities \$7,395.04.

L. J. Borie, western distributor of Metz cars, has found his salesrooms too small for his needs and has secured an entire building on Golden Gate avenue, San Francisco, Cal. He will place agents throughout the entire state.

B. W. Griffin, formerly manager of the Canada Life Insurance Co., has taken the agency for Lauth-Jergens motor trucks and opened headquarters in the Twenty-second Street Garage, Toledo, Ohio. He will cover Lucas, Ottawa and Wood counties.

The Pioneer Automobile Co., of San Francisco, Cal., has relinquished its agency for Hudson cars in favor of S. G. Chapman. In addition to handling Hudson cars, Chapman is acting as distributor for Oakland, Abbott-Detroit and Hupmobile cars.

W. R. Waters has opened a garage at 410 Mound street, East Davenport, Ia., under the style Greater Davenport Auto Co. He will handle the McFarlan car and do general repairing and rebuilding in his own forge shop, which adjoins the garage.

The Gomery-Schwartz Motor Car Co. is the style of a new concern which has opened temporary quarters at the corner of Fifth and Orange streets, Wilmington, Del. G. R. Wright is the manager of the company, which will handle the Hudson exclusively.

Under the style the Cedar Valley Auto Garage, Albert Belt, who conducted a salesroom and garage in Sycamore street, Waterloo, Ia., has sold his interests and moved to Oelwein, in the same state, where he has opened a salesroom. He handles the Buick car.

The Cadillac Motor Sales Co. is the style of a new company which has been formed at Dayton, Ohio, with H. M. McCord as manager, and salesrooms at 216 West Third street. Until the building is finished, temporary quarters have been engaged at the Conover building.

Francis P. Blair, formerly with the United Motor Washington Co., has gone

into business on his own account and purchased the Carpenter Garage, at the corner of Seventeenth and U streets, N. W., Washington, D. C. He will open it to the public on September 1.

Eugene F. Bates, of Greenville, S. C., whose garage and repair shop was destroyed by fire a few months ago, together with several motor cars, is building a much larger garage on West North street. The new building will be of brick, one story high and will be fitted with all modern conveniences.

At an estimated cost of \$20,000, the Iowa Auto & Supply Co., of Des Moines, is building a two-story garage on the lot adjoining its present garage on Fourth street. The addition will be of brick and steel, 66 x 132 feet, and will give the company 30,000 square feet of floor space, making it the largest garage in the state.

Maynard, Ketchum & Maynard, who operated a garage and supply store in Yankton, S. D., under the style Yankton Auto Supply Co., have disposed of their business to the Von Donselaar brothers, who will continue it under the old name. The new owners will add an automobile livery and renting service to their other interests.

Incorporated under the laws of Ohio, with a capital of \$150,000, the American Motor Truck Delivery Co. has opened temporary headquarters at 1126 Ohio building, Toledo. The company intends to do a general trucking and express service, and has purchased ten Ewing trucks for that purpose. E. A. Mallory, formerly of the Banting Machine Co., is the manager.

The McAllister-Newgard Co., the first taxicab company in Minneapolis, Minn., has filed a voluntary petition in bankruptcy, with assets of \$14,712.50 and liabilities of \$60,945.07. The liabilities include, among others, \$30,972 loaned to the company by Julius Newgard, \$8,000 loaned by two Minneapolis banks, and a damage suit for \$10,200 instituted by one Harriet H. Heller. Failure of well known business men of the city to pay their taxicab bills is one of the reasons for its embarrassment given by the concern.

Recent Losses by Fire.

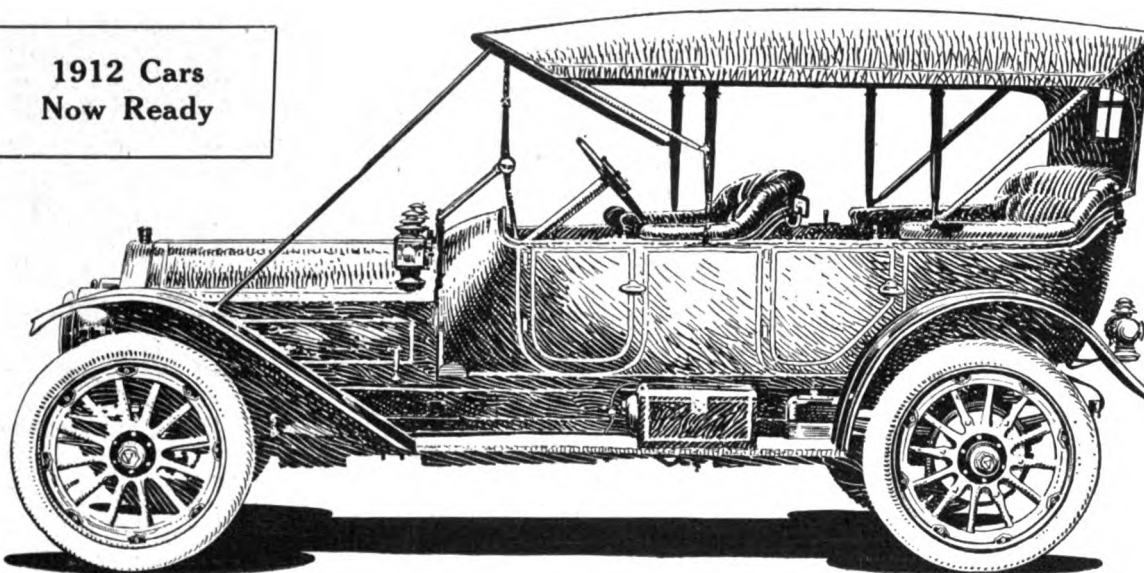
Brookport, Ill.—Ford Garage and two cars burned. Loss, \$3,000.

Pender, Neb.—John Albertson's garage and two cars burned. Loss, \$4,000.

Portland, Ore.—Frank Bennett's garage, Fourteenth street, and six automobiles burned. Loss, \$15,000.

Stevens-Duryea

1912 Cars
Now Ready



The Seventh Year of Successful Sixes

The Stevens-Duryea Six with its more than six years of successful use and the known record of those years needs no wordy compliments.

When we began making Sixes in 1905 we met prejudice and opposition—but after six years we note that some of those who disliked and disbelieved in the Six in those days are now manufacturing Sixes.

So many Sixes sprung up following that early Stevens-Duryea Six that the world knows the Stevens-Duryea Six in 1905 must have been a big success—else why the followers?

The basic reason for the success of the

Stevens-Duryea Six is its "Unit Power Plant" Supported on Three Points. This principle and construction is of especial value in the Six cylinder car.

The weight reduction feature of the "Unit Power Plant" is particularly useful with a 6-cylinder motor, while the "Three Point Support" practically insulates the long Six power plant from the twisting, racking strains of the frame and allows it to deliver, therefore, full power to the rear wheels.

This construction is in great favor with other manufacturers. It is being widely adopted. You cannot have followers without a leader somewhere in the foreground.

A COPY OF "THE SEVENTH YEAR OF SIXES" ON REQUEST.

THE STEVENS-DURYEA COMPANY

Chicopee Falls, Mass.

Chicago Branch, 2349 Michigan Avenue



PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.
 Joseph Goodman, President. R. G. Betts, Treasurer.
 F. W. Roche, Secretary
 154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
 Single Copies (Postage Paid) 10 Cents
 Foreign and Canadian Subscriptions \$3.00
 Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
 Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, AUGUST 10, 1911.

Factor of Safety Unwittingly Supplied.

It remains to be generally appreciated that the long-desired advantages of an automobile control system that is accessible to one of the passengers as well as to the driver at length has been achieved, though unwittingly, and by several manufacturers. For two important reasons this is a useful feature. The first is that it places the means of driving within reach of two persons instead of one. Thus in the event of the sudden disability of the driver, such as may arise through illness, shock or accident, the passenger may be enabled to stop the car, or even to drive it for considerable distances. The second advantage is that while teaching beginners in the art of driving the instructor may have the car at command at all times without inconvenience to himself and without the use of special fittings.

During the present season several distressing accidents have occurred as the re-

sult of the indisposition of the driver of a car. In two or three cases examination after a fatal accident has revealed the fact that the driver was dead of heart failure before the car ran off the road or overturned. Faintness, nervous shock arising from an unexpected contingency, the bewilderment that is occasioned in the same way, a blow in the head as from an overhanging obstruction, and, painful to relate, intoxication—all are other possible, though by no means rare, causes of momentary or prolonged aberration. It is quite often possible that such causes have contributed to more mysterious mishaps of the highway than ever the much-maligned steering gear or the "exploded" tire could begin to account for.

Hitherto the only emergency recourse of the passenger in front has been to the clutch pedal, the ignition switch and the steering gear; an agile person also might crawl out from the rear of the car on the driver's side and apply the emergency brake, thereby also disengaging the clutch. Yet none of these possibilities have proved really effective in critical moments.

With what in many respects may be termed the most approved method of control mechanism arrangement, however, the double control really may be said to have been attained. It is true that this was not the object sought in making the change, that it is an advantage purely incidental to other advantages, which, for the moment, occupied the mind of the designer, but that does not in the least interfere with the principle, which is well worthy of thought.

How has the double control been attained? By the simple expedient of placing the gear-shifting and emergency brake levers in the center of the foot board.

Motor Vehicles for Military Uses.

It may be observed that a new influence is beginning to be felt in the motor truck industry, one that promises—or, perhaps it might be said, threatens—to become increasingly manifest in the future. Hitherto the industry has looked forward wistfully to the big market that would be thrown open when motor vehicles at length should find a lasting place in the war armament of the nations. That recognition of its advancement to a practical stage at length has been granted and there is every present prospect that the employment of military motor cars will continue to increase. Furthermore, the influence of military re-

quirement already is beginning to be revealed in design.

Especially is this the case in France and Germany, where the subsidy plan offers tremendous encouragements to manufacturers who follow the suggestions of the army authorities in respect to design. As the matter stands the manufacturer has everything to gain and apparently nothing to lose by following the army rules. The truck that is built in conformation to certain requirements and which successfully passes the test of the severe military trials receives government sanction. Its purchasers obtain a not inconsequential bonus at the time of purchase and an annual emolument for several succeeding years. In its semi-official capacity the approved type is certain to enjoy considerable prestige, an advantage which its manufacturer is likely to seek to extend to vehicles of other types which he also produces. The evident tendency is toward a convergence of types and a commercial movement which inclines very much toward an ultimate monopoly.

A more natural view of the matter is that the adoption of motor vehicles for military purposes involves a healthy trend toward standardization, not only of structural parts but of bodies and equipment as well. The pattern of vehicle approved by government authorities is almost certain to be copied extensively by makers who do not succeed in winning official approval with their own constructions, and the public is apt to be favorably disposed toward it.

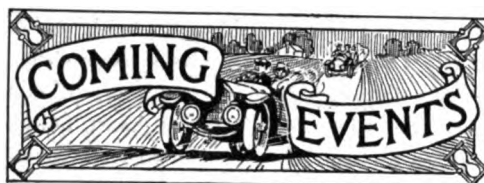
The contrast is that between standardization by dictation and standardization by commercial and scientific requirement. The type best suited to army needs, particularly in the field, may not be, and, it is not unfair to say, probably will not be, the type best suited to commercial needs. The military requirement is for a vehicle that will stand full-load service over military roads or no roads at all. The endurance requirement, therefore, is far greater than that of the commercial machine, which is destined to be employed under constantly improving highway conditions. The foreign builders at present are progressing in the direction of heavier construction, slower speeds, steel tires—at least as far as the army trials reveal commercial tendencies. These features, however, do not fit in with the commercial requirement of this country, however well they may accord

with Continental and British business needs.

In this country, with no immediate prospects of subsidized production and with the military authorities none too active in encouraging the development of the army truck, the influence of the war automobile has not yet begun to appear. At the same time one manufacturer already has been commissioned to construct a special army escort wagon in co-operation with the authorities, thus evidencing the feeling that the commercial standard and the army standard are not comparable. This is undoubtedly a well-grounded sentiment. The only danger is that the idea may become current that what is suitable for army work is equally suitable for the uses of commerce. The likelihood of such an impression originating in this country is extremely remote, but with the influence of foreign design still evident in the American draughtsman's work there is reason to guard against a misapplication of military specifications.

With due respect for the New York City magistrate who ruled that it is not an offense to drive at the rate of 27 miles an hour on the thoroughfares of the city, provided only that they are free or nearly free of traffic, it may be remarked that until human eyes are able to see around corners, no speed approximating a mile in two minutes is suggestive of the "careful and prudent" pace defined by the New York law, technicalities to the contrary notwithstanding. It is not enough to have a clear road ahead. The possibilities of traffic emerging from cross streets must be considered in reckoning prudent rates of speed. No one knows better than the careful motorist the peril that lurks in such directions, nor the number of "close shaves" that are of almost daily occurrence. Motorists probably will be the chief victims if ever Magistrate Murphy's dictum becomes the law.

As no state in the Union obeyed his order that the automobile laws be changed to conform with those of New Jersey, it would seem that the entertaining Commissioner of Motor Vehicles of the latter state could save time and postage stamps by "blacklisting" all of the other states at one swoop, instead of doing the job piecemeal. Such a list would be so truly formidable that it might frighten the rest of the world



August 12, Detroit, Mich.—Track race-meet, State fair grounds.

August 12, Philadelphia, Pa.—Quaker City Motor Club's annual reliability trial for pleasure cars.

Aug. 12, Worcester, Mass.—Worcester Automobile Club's sixth annual hill climb on Dead Horse Hill.

August 12, Baltimore, Md.—Racemeet under management of E. A. Moross.

Aug. 17, St. Louis, Mo.—Reliability contest under auspices Missouri Automobile Association.

August 25-26, Elgin, Ill.—Chicago Motor Club's national stock chassis road races.

Sept. 1, Oklahoma, Okla.—Reliability contest under auspices of the Daily Oklahoman.

Sept. 2-4, Brighton Beach, N. Y.—Racemeet under management of E. A. Moross.

Sept. 4, Denver, Col.—Denver Motor Club's racemeet on motordrome.

September 4-5, Brighton Beach, N. Y.—Twenty-four hours race under management E. A. Moross.

Sept. 7-8, Philadelphia, Pa.—Philadelphia Auto Trade Association's racemeet.

Sept. 7-9, Hamline Track, Minn.—Minnesota State Automobile Association's racemeet.

Sept. 7-10, Buffalo, N. Y.—Reliability contest under auspices Automobile Club of Buffalo.

Sept. 9, Bologna, Italy—International road race for the Italian Grand Prix over the Bologna circuit.

Sept. 12-13, Grand Rapids, Mich.—Michigan State Automobile Association's racemeet.

Sept. 15, Knoxville, Tenn.—Track meet, Appalachian Exposition.

Sept. 16, Syracuse, N. Y.—National Circuit track meet, State Fair grounds.

Sept. 18-20, Chicago, Ill.—Reliability contest for motor trucks, under auspices of Chicago Motor Club.

Sept. 23, Lowell, Mass.—Road races under auspices of Lowell Automobile Club.

Sept. 23, Detroit, Mich.—State Automobile Association's racemeet.

Sept. 30-Oct. 7, Sydney, N. S. W.—Inter-

national automobile exposition under auspices of Royal Agricultural Society.

Oct. 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers' Association's open air show.

Oct. 3-7, Danbury, Conn.—Track meet under auspices Danbury Agricultural Society.

October 7, Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

Oct. 9-13, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

Oct. 14, Santa Monica, Cal.—Santa Monica road races under auspices of Santa Monica Motor Car Dealers' Association.

Oct. 12-22, Berlin, Germany.—International automobile show in Exhibition Hall, Zoological Garden.

Oct. 13-14, Atlanta, Ga.—Racemeet under management H. C. George.

Oct. 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

Nov. 1, Waco, Texas—Racemeet under auspices Waco Automobile Club.

Nov. 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

Nov. 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

Nov. 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

Nov. 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

Nov. 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

Nov. 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

Nov. 30, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

Dec. 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

Jan. 6-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden.

Jan. 10-17, New York City—National Association of Automobile Manufacturers' 12th annual show in Grand Central Palace.

Jan. 27-Feb. 10, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in Coliseum and First Regiment Armory.

into abject submission and even compel extra sessions of the various legislatures! The fact that Connecticut, Illinois and a few other states grant free travel to New Jerseymen, although New Jersey charges their citizens an "admission fee" of \$1, is

no reason why they should be excepted. Their laws are inconsistent with those of New Jersey and they must be altered. New Jersey's commissioner is too consistent to permit one-sided reciprocity to exist in any form or in any direction!

ZENGLE BIGGEST NAME OF THE BEACH

National Crack Overshadows All Others on Galveston Sands—Finishes First in Seven of Twelve Events.

Over the Galveston racemeet of 1911, which was held on Thursday, Friday and Saturday last, 3d, 4th and 5th inst., on Denver beach, which is close by that Texas city, the name of Len Zengle, National pilot, looms large. Zengle, who alternately drove a National stock car and a special racing machine of the same make, cleaned up just seven of the twelve events carded during the three days, which, as in the two previous years, formed part—a very considerable part be it added—of Galveston's "17 days of joy," otherwise known as the annual cotton carnival. As those seven firsts were won in the only seven events in which the Zengle-National aggregation was entered it is apparent that the "team," to use a theatrical phrase, simply "hogged the limelight."

As was the case at last year's meet the biggest crowd of the three days assembled for the inauguration of the sport, but though the big grandstand was packed on Thursday, on Friday more than a few seats were available and by Saturday the crowd was still further thinned out. Due to the excellent policing, the meet was "accidentless"—a large force of special deputies was augmented by the presence of part of the Texas militia—and not even the multitude of dogs which last year scurried across the sands were able to pass the "firing line," marked for a good part of the course by a very new and very substantial wooden fence.

Following the curtain raiser, a 10-mile race for stock chassis cars of from 161 to 230 cubic inches piston displacement, which was won handily by Albert Hoffman in a Ford, the only contender being Mortimer Roberts, who, as usual, piloted an Abbott-Detroit, Zengle started his winning streak by walking away with first prize money in a 20-mile event for stock chassis cars in the 301-450-inch class with a minimum weight of 1,800 pounds. This race, like the other, was a match event; though three drivers originally signified their intention of starting, Captain J. W. Munn (National), who was the popular idol last year, withdrew at the last minute, leaving Zengle and George Baker (Pope-Hartford) to fight it out alone. It was not much of a fight, however, as Zengle took the lead at the gun and never was headed. His time was 19:20, and Baker finished 1 minute and 13 seconds later.

George De Witt (Cadillac) accounted for a 10-mile race for stock chassis cars in the 231-300-inch class, in which there were only two starters, and though James Geary, who had the mount on a Marion, fought

hard and at one time lead the winner he was unable to maintain the pace. De Witt's time was 11:19. The piece de resistance of the day, a 50-mile non-stock, free-for-all, was reserved to the last, and it brought out the largest field, 11 cars lining up for the start. Roberts in his Abbott-Detroit took the lead at the start, but immediately afterward Zengle flashed to the front and never was headed. Thereafter the only really exciting part of the race was the scrap between McHugh (National) and Endicott (Inter-State) for second place, all the other cars being strung out far behind the leaders. Eventually these two drivers finished second and third, respectively, behind Zengle, whose time for the 50 miles was 45:15.

The second day was practically a repetition of the first, with Zengle to the front in three out of the five events carded. In each case he won apparently with ease, his first victory coming in a 20-mile stock chassis race for cars of from 451-500 cubic inches piston displacement. Thereafter he won in rapid succession the mile time trials, in which he lowered his own record of 40 $\frac{3}{4}$ seconds, made last year with a Chadwick, to 37 $\frac{1}{4}$ seconds, and a special 50 miles free-for-all, in which he was the only one of a field of eight to finish. A 50 miles owner's race brought out only one starter who was eligible, Bud Hamilton (National), and he won in a walkover. Hoffman in his Ford repeated his victory over Roberts in a 20-mile stock chassis race for cars in the 161-230-inch class, and the curtain was rung down on the second day with a five-mile race for electric cars, which was won by James Collinas in a Columbus electric, with Cortes Pauls, Jr., in a Baccok, second. Another Columbus, driven by E. Wallingford, dropped out of the race after running about two miles. The smooth, noiseless running of the electrics was in marked contrast to the smoking and snorting gasoline propelled cars.

Zengle's batting average on the last day was even better than it was on the previous day. In addition to carrying off the honors in a 10-mile race for cars of from 301 to 450 cubic inches piston displacement, he also won the longest race of the meet—it was at 150 miles and was a non-stock free-for-all—and inasmuch as there is no American mark for the distance, straight-away, regardless of class, it is not unlikely that his time of 2:06:06 will stand as a record. Nine other starters lined up for the gun in the long race, but Zengle soon outdistanced them all; his chances of winning never were in danger. Barring William Rader (National), who was second, and Harry Endicott (Inter-State), who was third, Hoffman in a Ford was the only other contestant to finish. His time was 3:01:30.

In the other 10-mile race which was run off on the last day and which was a stock chassis event for cars in the 231-300-inch class, George De Witt, who had the mount

on a Cadillac, very easily took the measure of Van Curtis (Marion), winning handily in 11:09 $\frac{3}{4}$. The summary:

Thursday, August 3d.

Ten miles, stock chassis, 161-230 cubic inches, 1,200 pounds minimum weight—Won by Albert Hoffman, Ford; second, Mortimer Roberts, Abbott-Detroit. Time, 11:24 $\frac{3}{4}$.

Twenty miles, stock chassis, 301-450 cubic inches, 1,800 pounds minimum weight—Won by Len Zengle, National; second, Harry Baker, Pope-Hartford. Time, 19:20.

Ten miles, stock chassis, 231-300 cubic inches, 1,500 pounds minimum weight—Won by George De Witt, Cadillac; second, James Geary, Marion. Time, 11:19.

Fifty miles, non-stock, free-for-all—Won by Len Zengle, National; second, Neal McHugh, National; third, Harry Endicott, Inter-State. Time, 45:15.

Friday August 4th.

Twenty miles, stock chassis, 451-600 cubic inches, 2,100 pounds minimum weight—Won by Len Zengle, National; second, Harry Baker, Pope-Hartford. Time, 23:45.

Twenty miles, stock chassis, 161-230 cubic inches, 1,200 pounds minimum weight—Won by Albert Hoffman, Ford; second, Mortimer Roberts, Abbott-Detroit. Time, 23:22.

One mile time trials, class E—Len Zengle, National Special. Time, :37 $\frac{1}{4}$ seconds. Len Zengle, National stock car. Time, :41 seconds. Harry Endicott, Inter-State. Time :42 $\frac{3}{4}$ seconds.

Fifty miles, class E, owner's race—Walkover for Bud Hamilton, National. No time taken.

Fifty miles special, free-for-all—Won by Len Zengle, National. Time, 40:39 $\frac{1}{4}$. No others finished.

Five miles for electric cars—Won by James Collinas, Columbus; second, Cortes Pauls, Jr., Baccok. Time, 13:21.

Saturday, August 5th.

One hundred and fifty miles, non-stock, free-for-all—Won by Len Zengle, National; second, William Rader, National; third, Harry Endicott, Inter-State. Time, 2:06:06.

Ten miles, stock chassis, 231-300 cubic inches, 1,200 pounds minimum weight—Won by George De Witt, Cadillac; second, Van Curtis, Marion. Time, 11:09 $\frac{3}{4}$.

Ten miles, stock chassis, 301-450 cubic inches, 1,800 pounds minimum weight—Won by Len Zengle, National; second, Harry Baker, Pope-Hartford. Time, 10:45 $\frac{3}{4}$.

Potter to Direct Shelby Motorists.

Motorists of Shelby County (Iowa) have organized the Shelby County Automobile Association, with headquarters at Harlem. The officers are: President, L. F. Potter; vice-president, C. A. Reynolds; secretary, Fred Hulsebus; treasurer, W. L. Paup; directors, I. E. Hoover, Dr. E. A. Moore and Dr. F. E. Brazie.

PREMIER TOURISTS REACH PACIFIC

**Most Notable Journey of Private Owners
Is Completed Ahead of Schedule—
Experiences Many and Varied.**

Twenty-four Morgan & Wright "Nobby" tread tires are due to be dipped into the water of the Pacific at Ocean City, near Los Angeles, Cal., to-day (Thursday), thus marking the completion of the transcontinental journey of the Premier touring party. The tires are on the front wheels of twelve Premier automobiles which carried thirty men, eight women and two children from the Atlantic seaboard across six

gees two days ahead of time. The cities visited and the route followed included Philadelphia and Harrisburg, Pa.; Baltimore, Md.; Washington, D. C.; Cumberland, Md.; Uniontown, Pa.; Zanesville, O.; Indianapolis, Ind.; Chicago, Ill.; Davenport and Des Moines, Ia.; Omaha, Neb.; Denver, Col.; Cheyenne, Rawlins, Rock Springs, and Kemmerer, Wyo.; Salt Lake City, Utah; Reno, Nev.; Auburn, San Jose, San Francisco, Stockton, Fresno and Los Angeles, Cal.

The more picturesque part of the trip did not begin until Omaha was reached, as up to that time hotel accommodations were good. Beyond that point, however, the cities where such large parties can be well taken care of being far apart, the tourists

but from the latter place until the completion of the journey they were able to obtain good hotel accommodations. Through Southern California, however, the beautiful weather of the enticing nights caused the tents to be used, as the "schooner" remained with the motorists until Los Angeles was reached.

Two expert photographers, one of whom operated a moving picture camera, accompanied the tourists and supplied hundreds of souvenir post cards of the journey, in which they were the central figures and which were sent broadcast to their friends all over the country.

High Price for a Spurious Tag.

There's many a slip between cup and lip, as Jacob Blaustein has learned to his sorrow. Blaustein drives an automobile for his uncle in New York, and one day last week he visited New Jersey, but instead of purchasing a yearly license he secured through a man in Hoboken an eight-day tourist tag, which is not allowed New Yorkers. However, everything would have worked alright if Blaustein had not ditched his car near Ridgewood, N. J. Then the tag transaction came out and he was haled to court and fined \$100 for driving without a license and held in \$500 bail for the grand jury for displaying a spurious tag.

Abbott "Bulldog" Passes 30,000th Mile.

The Abbott-Detroit "Bulldog," which as aptly might be styled the Abbott-Detroit Mile Hunter, which, under the direction of C. G. Percival, is piling up a mileage record, completed its first year's travel when it reached Barbara, Cal., on the 1st inst., with a record of 30,424 miles to its credit. During the 12 months it visited 44 States, traveled from the Great Lakes to the Gulf of Mexico—and into Mexico—and reached from ocean to ocean. It now is en route up the Pacific Coast to British Columbia and Alaska.

When Owner May Become a Chauffeur.

Replying to a letter from an automobile owner who desired to take acquaintances motoring for a small consideration, Cornelius Roach, secretary of the state of Missouri, rules that, under the new law, even though a man owns a car, if he uses it in rental service and drives it himself, he must have a chauffeur's license. Under the new Missouri law, any man who drives a car for pay is a chauffeur.

No Gasolene in Roanoke on Sundays.

Roanoke, Va., has "got religion," and has become so full of Sunday observance laws, that all of the garages and other automobile establishments in the city now are closed so tightly on Sundays that not even gasolene is purchasable. One of the local papers cites this reform as additional evidence of Roanoke's "remarkable progress" and "broad-gauged citizenship."



PREMIER OCEAN-TO-OCEAN TOURISTS AT A HALF-WAY POINT

mountain ranges and a couple of deserts to the shores of the Pacific. The motorists left Atlantic City, N. J., Monday, June 26, after going through the formality of backing the twenty-four Continental tires which encircled the rear wheels of the automobiles, into the waters of the Atlantic. The front tires were reserved for wetting in the Pacific.

As stated in the Motor World of June 29, the party is made up entirely of owners driving their own cars. The only professional chauffeur in attendance drove the pathfinding car, which was not officially included in the tour. Because of this fact the tour stands as one of the most notable ever undertaken and demonstrates that there are no insurmountable difficulties in ocean-to-ocean travel in touring cars driven by their owners, as, with the exception of three broken springs, no mechanical difficulties were encountered. The schedule allowed thirty-six days for travel to cover the 4,500 odd miles, and eleven days for sightseeing. The tourists, however, gained on their schedule and will reach Los An-

provided a camping outfit and established a tented village, as did the early pioneers along Western trails. For this purpose a car was fitted out as a "prairie schooner," but instead of crude wood fires for the culinary department, modern gasolene stoves were used. This modernizing of ancient methods was still further exemplified by the use of the Remy electric lights and Prest-O-Lite tanks for illumination, instead of candles.

On the Medicine Bow range of the Rockies, in Colorado, the motorists were caught in a cloud burst, which made the roads impassable for a time. The eight women of the party, including Countess De Calatrava, with the children, slept in a barn, while the men made the best of conditions in the army tents. From there to Rocky Springs, Wyo., was a difficult journey, as the route was over the Continental divide, where the elevation is 7,500 feet, and through Tide Siding, Wyo., where the altitude is over 8,000 feet.

Between Salt Lake City, Utah, and Reno, Nev., the tourists camped out every night,

MOTOR TRUCK CROSSES CONTINENT

Saurer Vehicle Completes Long Journey in Two Instalments—Soul-Trying Undertaking That Occupied Five Months.

What is undoubtedly the most extensive and most strenuous demonstration of a motor truck that ever has been accomplished was completed Wednesday, 2d inst., when a five-ton Saurer truck rolled into New York, thereby completing a 5,000-mile journey from the Pacific to the Atlantic coast. This "Pioneer Freighter," as it was dubbed by its owners, was loaded, among other things, with camp equipment,

days when only three miles were covered and when a dozen bridges had to be braced in order to permit progress. After two weeks spent in Los Angeles the truck continued to San Francisco, at which point A. L. Westgard, who had directed its operations, retired.

The journey from ocean to ocean was not continuous, as on June 9 the truck was shipped by rail from San Francisco to Pueblo, Col., where the road journey eastward was taken up on June 15. During the 779 miles to Kansas City, Mo., A. C. Thompson and George McLean, who "spelled" one another at the wheel and to whose courage and endurance under trying ordeals much of the success is due, performed some strenuous work. They got



SAURER CROSS-CONTINENT TRUCK AT ITS JOURNEY'S END

timber for shoring up bridges and making mud holes passable, and a powerful winch, which is operated by the engine of the car and which proved of great assistance in hauling the truck out of bad spots. When it reached New York the truck looked the worse for wear, but it had no trouble in "keeping step" with an escort of 15 trucks which met it on the outskirts and accompanied it into the city. Its appearance only mildly suggested the many times it had been hub deep in sand, or became mired in two or three feet of slimy mud, which covered many of the so-called roads of the Middle West.

The big truck left Denver, Col., March 1, headed for San Francisco, Cal., via the Southern trail, or "Trail of the Sunset," which was followed by the pioneers of '49, and after 69 days of soul-trying travel it reached Los Angeles, Cal. But half the time was spent in actually moving, as the "going" was almost beyond description. The winter rain and snow made it almost impossible for the truck to move, and there were

but seven hours sleep and spent eight hours at Hutchinson, Kan., in rebuilding a bridge wrecked by the truck. From Kansas City the route led through Chicago, Toledo, Detroit, Buffalo and thence to New York.

What Constitutes "Provoke" in Indiana.

Charges of "provoke"—whatever that may be in legal parlance—have been filed by William E. Springer, president of an Elizabethtown (Ind.) bank, against Thomas Groub, a wholesale grocer from the neighboring town of Seymour. Springer claims that Groub was running his automobile while in an intoxicated condition, and that the grocer zigzagged across the road in front of his (the banker's) car; that the accused furthermore persisted in opening his muffler, thereby stirring up the dust and throwing it over the occupants of complainant's machine; that this performance was continued for about five miles and he got tired of it—and as a result he intends to show the presuming grocer what it means to "provoke" a banker!

30 TRUCKS START IN 10 DAYS TEST

Chicago-Detroit-Chicago Affair Attracts Big Field—Eight Contestants Suffer Penalizations on First Day.

Scheduled to travel at an average rate of 75.8 miles a day for the ensuing eight days, 30 motor trucks, loaded to their rated capacities, started on Tuesday, 8th inst., from Chicago on the first leg of Hearst's Chicago American's second reliability run for commercial vehicles; before they return to Chicago they will have covered close to 700 miles, most of it between that city and Detroit, Mich., and return, which is the route that will be followed. Though the Chicago American nominally has the affair "under its wing," the Chicago Automobile Club and the Wolverine Automobile Club of Detroit each have more or less to do with it, the former looking after the technical details and supplying most of the officials and the latter keeping a watchful eye on matters in its home city.

The run is designated a Grade 3 event, which, according to the recently adopted rules of the American Automobile Association governing commercial vehicle contests, means that it is a "a demonstration in which time penalties are imposed and a record is taken of the gasoline, oil or electric current consumed and the cost of same used to determine the fuel efficiency of the vehicle." Following is the complete list of starters:

Division 2K, 501-1,000 Pounds Capacity.	
No. Truck.	Entrant.
9—Cass.....	Poss Motor Co.
24—Lincoln.....	Lincoln Motor Car Works
37—Van Dyke.....	Van Dyke Motor Car Co.
Division 3K, 1,001-1,500 Pounds Capacity.	
5—Buffalo.....	Bowling Green M. C. Co.
10—Buick.....	Buick Motor Co.
11—Buick.....	Buick Motor Co.
18—International.....	Inter. Harv. Co.
19—International.....	Inter. Harv. Co.
27—Kirkworth.....	Kirkworth Wagon Co.
31—Little Giant.....	Chicago Pneu. Tool Co.
33—Chase.....	Chase Motor Wagon Co.
Division 4K, 1,501-2,000 Pounds Capacity.	
1—Gramm.....	Gramm Motor Co.
6—Hewitt.....	Hewitt Motor Car Co.
20—Luth Juergens.....	L. Juergens M. C. Co.
23—Le Moon.....	Nelson Le Moon
30—Owosso.....	Owosso Motor Co.
38—Clark.....	Clark Delivery Car Co.
39—Ideal.....	Ideal Auto Co.
40—Chase.....	Chase Motor Wagon Co.
Division 5K, 2,001-3,000 Pounds Capacity.	
32—Federal.....	Federal Motor Car Co.
36—Stevenson.....	Stevenson Motor Truck Co.
Division 7K, 4,001-5,000 Pounds Capacity.	
2—Gramm.....	Gramm Motor Truck Co.
16—Kelly.....	Kelly Motor Car Co.
29—Mais.....	Mais Motor Truck Co.
Division 8K, 5,001-7,000 Pounds Capacity.	
3—Gramm.....	Gramm Motor Truck Co.
8—Grabowsky.....	Grabowsky P. W. Co.
14—Dayton.....	Dayton Auto Truck Co.
17—Kelly.....	Kelly Motor Truck Co.

Division 9K, 7,001-10,000 Pounds Capacity.
 4—Gramm.....Gramm Motor Truck Co.
 15—Speedwell....Speedwell Motor Car Co.

All of the trucks reached South Bend, Ind., on Tuesday evening, as scheduled, and though all started yesterday morning (Wednesday) on the 77.3 miles run to Fort Wayne, where the next night control was located, the 95 miles trip of the previous day had left its mark, and eight of them carried penalties varying from 4 to 110 points. The Cass truck No. 9 drew the largest number of demerits, getting 110, and the smallest number, 4, was chalked up against No. 40 Chase. Of the six others one of the Gramms got 8 debits, one of the Kellys also got 8, the Ideal 10, the Kirkworth 20 and Vandyke 39.

To-day (Thursday) the trail leads from Wayne to Lima, O., a distance of 63 miles, and on Friday the 83 miles between Lima and Toledo, via Beaver Dam, Findlay and Bowling Green will be essayed. Detroit will be reached on the fifth day, the 59 miles between that city and Toledo being covered on Saturday, 12th inst. From Detroit the trail leads to Jackson, 73.9 miles, and to Kalamazoo, 65.9 miles, Monday and Tuesday, respectively, being scheduled as the days for these runs, the whole of Sunday being spent in Detroit. Sixty-eight miles on Wednesday, 16th inst., and 96 on the following day will take the party to South Bend and to Chicago respectively, where the run will be terminated on Thursday, 17th inst.

California Re-echoes New York Ruling.

In the state of California no motorist will have to bear witness against himself. This is the opinion of Judge B. F. Bledsoe, of the San Bernardino County Superior Court. The decision was rendered in the case of Fred Hendee, George Smith and Jesus Amarias, of San Bernardino, Cal., who failed to stop their car and report the accident, after having run down and killed F. W. Pattee, a citizen of the California town. The legislature of California recently enacted a statute similar to the Callan law in New York, which makes it a felony for failure on the part of an automobilist not to stop after an accident and give his name and address to the police. The Bledsoe decision is in line with the ruling of the New York courts in the Rosenheimer case, but goes even further, for the California court says the law is unconstitutional, as it applies only to motor vehicles.

Pontiac Organizes Automobile Club.

Twenty-seven motorists of Pontiac, Mich., have organized the Pontiac Automobile Club, which will affiliate with the Michigan State Automobile Association. President E. A. Skae, of the state organization, was present at the first meeting. The officers are: President, S. S. Crohn; vice-president, D. I. Oliver; secretary-treasurer, Cramer Smith.

BURMAN REGAINS "MEAL TICKET"

Takes it Away from Knipper at Scranton Racemeet—Local Driver, However, Surprises the Moross Troupe.

Scranton, which is in the coal region of Pennsylvania, had a racemeet on Monday afternoon, 7th inst., and the particular spot in that mining town where the racing was done was an antiquated half-mile dirt horse track styled the Minooka Driving Park. Originally the meet was scheduled for the previous Saturday, but the track, which even on Monday was in anything but perfect condition, was unapproachable on the earlier date because of rain. Barring the fact that Knipper let the Remy "meal ticket" slip through his fingers, though no outsider was permitted to even get a good look at it, Burman winning it back after letting his team mate enjoy its privileges for just one week, little of a sensational nature developed. Not even a single record was broken, notwithstanding the fact that the E. A. Moross aggregation has a sort of "Midas touch" as far as records go. But then, the American Automobile Association does not recognize "records" which are made on tracks smaller than one mile in circumference, which probably accounts for the absence of this feature of the program.

Principal interest centered in a three miles handicap race, in which Burman in one of the Moross Benz cars was on scratch with three other cars between him and William Williams, whose "baby" Buick was on the long mark. Knipper was very much in it, too, at the wheel of a Lozier, and the appearance of a 120 horsepower Hotchkiss, with Charles Kilpatrick up, added spice to the contest. Williams, however, proved the real surprise party. After a hard fight which lasted five laps Burman passed all the other cars except Williams's Buick. Williams's lead was too great by the narrow margin of $\frac{1}{2}$ of a second, which was the amount of time between him and Burman at the finish. Williams also accounted for a two miles event for cars of less than 300 cubic inches piston displacement. The remainder of the program was made up of mile and half-mile exhibitions, a three laps novelty race, which went to C. H. Moulthrop in an Ohio car, and the race for the Remy Brassard. The summary:

Two miles, class C, 300 cubic inches and under—Won by William Williams, Buick; second, Ed. Richmond, Ford; third, C. H. Moulthrop, Penn "30." Time, 2:45 $\frac{3}{4}$.

One-half mile time trials—Robert Burman (Benz), 34 $\frac{3}{4}$ seconds; Wm. Knipper (Mercedes), 37 $\frac{3}{4}$ seconds.

Two miles handicap, match—Won by Charles Kilpatrick, Hotchkiss (scratch);

second, W. Meenan, National (15 seconds). Time, 2:43 $\frac{3}{4}$.

One and one-half miles novelty race—Won by C. H. Moulthrop, Ohio; second, Ed. Richmond, Ford. Time, 3 minutes.

One mile time trials—Robert Burman (Benz), 1:09 $\frac{3}{4}$; Wm. Knipper (Mercedes), 1:13 $\frac{3}{4}$.

Three miles handicap, free-for-all—Won by William Williams, Buick (60 seconds); second, Robert Burman, Benz (scratch); third, C. H. Moulthrop, Penn "30" (50 seconds). Time, 3:48 $\frac{3}{4}$.

Two miles, free-for-all, for Remy Grand Brassard, best two out of three heats—Won by Robert Burman (Benz) in two straight heats; Wm. Knipper (Mercedes) and C. H. Moulthrop (Hotchkiss), second and third, respectively, in both. Time: first heat, 2:36 $\frac{3}{4}$; second heat, 2:38 $\frac{3}{4}$.

Blames Motor Car for Political Defeat.

After blaming the automobile for diseases, and bank failures, and ruining the silk hat industry and 1,001 other "crimes," it would seem as if the record of sins attributed to the motor car had reached the limit, but last week a new one was added to the list. It is nothing less than the loss of an important political nomination, due, it is claimed, to the inability of the owner of the car to use it in canvassing the countryside.

Corrie C. Coburn, of Grand Haven, Mich., is the political sufferer who thus has added to the humor of the nation, by filing suit for \$1,000 against the Muskegon Auto Co., of Muskegon, Mich., for depriving him of the use of his motor car during a fight for the nomination for district attorney, which action he claims resulted in his defeat. In answering the charge, the garage company merely states that the would-be district attorney owed it \$50 for supplies, etc., and that it had no intention of letting him use the car until this debt was paid. While they were wrangling over the \$50, the nominating proceedings went merrily on, and Mr. Coburn finished the race for office second best.

Port Jefferson Encourages the Amateurs.

Having obtained its first taste last year, Port Jefferson, L. I., will repeat its hill climbing contest on September 9th, under the auspices of the Port Jefferson Automobile Association. Sixteen events have been carded, seven for professional drivers, the remainder for amateurs; four of the latter will be restricted to residents of the surrounding country. The free-for-all will carry with it the Ardencraig trophy and cash prizes of \$150, \$75 and \$50. For the other "pro" events purses of \$50 and \$25 are offered, and \$50 will be added for the breaking of the record for the hill, which now is held by Ralph DePalma. The grade is about 2,000 feet long and though it is quite steep in places the average rise very closely approximates 10 per cent.

NEW YORK'S SPEED LIMIT IN DOUBT

City Magistrates Disagree and Punishment Varies With the Court—Law's Language Gives Rise to Trouble.

With one New York City magistrate holding that the speed limit within the city is fixed by the Callan law, that is to say, at thirty miles an hour, and with two other magistrates deciding that the city ordinance passed in 1896 and limiting the speed of all vehicles to eight miles an hour is valid and not superseded by the State automobile law, the speed law tangle of New York City has grown worse than ever. As a result the police do not know what stand to take, but it is expected that some form of agreement will be reached at the City Magistrates' Board meeting this week.

Magistrate Daniel F. Murphy, sitting in the Yorkville court on Monday, the 7th inst., discharged a prisoner charged with speeding at the rate of 27 miles an hour. The policeman making the arrest admitted that the avenue was practically free of traffic at the time, and the magistrate thereupon cited the Callan law as to what constitutes reckless driving. He went further and rebuked the officer for arresting the motorist, practically ordering him not to bring such offenders again to his court. Before nightfall the decision had become known all over the town and a noticeable increase in the average speed of automobiles took place.

The very next morning, however, and partly as a result of following Magistrate Murphy's decision, two offenders, who had printed copies of it in their pockets, were caught by pursuing motorcycle policemen and arraigned before Magistrates O'Connor and Freschi, respectively. The former, sitting in the Harlem Court, smiled when shown his brother magistrate's decision of the preceding day and ordered the court stenographer to take notes of the proceedings. He then acted the part of the defendant's counsel, taking exception to the charge, citing the Callan law, etc., and finally asking the court for a dismissal of the charge. He then returned to his magistrate's duties and accepted his own exception, but fined the motorist \$5.

Simultaneously Magistrate Freschi, in the West Side Court, decided that the Callan law does not apply to New York City, and that the old ordinance of 1896 holds good. When he was shown the contrary decision of Magistrate Murphy he maintained his own view, but paroled the accused motorist in the custody of the latter's lawyer until he could prepare a written memorandum as to whether the ordinance is or is not enforceable.

The chief bone of contention appears to be the clause exempting cities of the first

class from the speed provisions of the Callan law. This clause reads: " * * * and provided further that nothing in this article contained shall impair the validity or effect of any ordinances regulating the speed of motor vehicles * * * heretofore or hereafter made, adopted or prescribed pursuant to law in any city of the first class * * * ." The wording of the law appears to be clear enough in this paragraph, but in the following sentence, separated only by a semi-colon from the "first-class clause" it is provided that "each city or village shall cause sign posts to be erected at the highways entering such city or village * * *"; the original draft of the law read "such cities, etc. * * *" referring distinctly to cities of the third class and villages. The substitution of the word "each" for "such" has been held to include New York among the cities required to erect sign posts in order to make its speed ordinance effective and legal. One of the best-know corporation lawyers of the city held this view recently and succeeded in obtaining a discharge from a Brooklyn court on account of this clause.

New Jersey Now Bars Bay Staters.

Because the Massachusetts legislature adjourned without obeying his "command" to change its law to conform with that of New Jersey, J. B. R. Smith, the employe of the latter state, who serves as its commissioner of motor vehicles, has brought the Frelinghuysen "exclusion act" to bear and closed the roads of New Jersey to all Massachusetts motorists who have not paid for a full year's registration. Massachusetts is another of the many states in which New Jerseymen may travel without charge whenever their legislature repeals its demand for \$1 for the privilege of entering the state. New York, Pennsylvania and Delaware already are on Smith's "black-list."

Bearing on the situation created by the law and the Commissioner, Mayor Appleby, of Asbury Park, has called a conference of the clubs and other interested, which will occur on Saturday, 19th inst., at the New Monmouth Hotel, Spring Lake.

Adding to Expense of Motor Trucks.

Apparently for no better reason than that they look like "easy money," Mayor Shanks, of Indianapolis, is seeking to boost the city's revenue by raising the license fee for motor trucks to \$10 per year. At present they pay \$3.

STATISTICS THAT SHOW PROGRESS

Massachusetts Supplies Figures Affording Comparisons—How Dealers and Owner-Drivers Have Increased.

According to figures issued by the Massachusetts Highway Commission, which give the first satisfying comparison of the various features of automobile registration, made possible by the annual registration laws, there were granted during the first eight months of the fiscal year 1911 (December 1, 1910, to August 1, 1911), 34,340 certificates of registration of automobiles, or almost 3,000 more than during the whole fiscal year of 1910. For the corresponding eight months of 1910 the number of automobile certificates issued was 27,487, a gain this year to date of 7,000 certificates. Manufacturers and dealers applied for 816 certificates, as against 649 during the whole fiscal year of 1910.

By far more significant, however, than the mere increase of registrations is the remarkable rise of the private-owner-driver, as against the professional chauffeur. Up to August 1, of this year, licenses to operate motor vehicles had been granted to 7,768 private owners, with 22,491 renewals of old licenses, and 2,743 new licenses to chauffeurs, with 8,873 renewals. Thus it will be noted that the total number of new licenses for private owners and renewals of old licenses during the first eight months of 1911 is 30,259, as compared with 28,611 for the entire fiscal year of 1910, while the total of the chauffeurs' licenses, new and renewed, this year is 10,252, as compared with 12,648 in 1910. In other words, the number of licenses to private operators this year already has increased almost 2,000 over the last fiscal year, while the number of chauffeurs' licenses has decreased more than that figure.

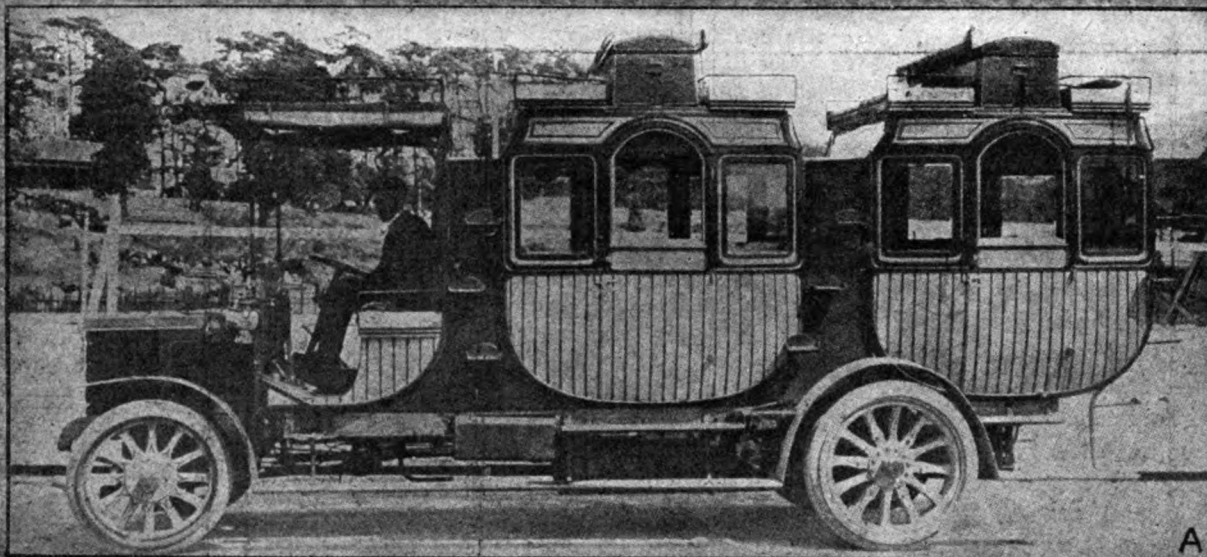
Beginning with the current year licenses for commercial vehicles and tourists will be handled separately, the former carrying the letter "B" (business) followed by the registration number, the latter provided with the prefix "X." During the month of July alone 520 tourists' certificates were issued, which compared with the 742 issued in July, August and September of 1910, constitutes another record.

The following table gives the figures for the last four fiscal years:

	1908.	1909.	1910.	1911. up to Aug. 1.
Certificates of registration:				
Automobiles	18,066	23,971	31,360	34,340
Motorcycles	1,922	2,394	3,370	3,165
Manufacturers or dealers.....	381	491	649	816
Licenses to operate:				
Private operators	5,865	8,336	9,450	7,768
Private operator renewals.....			19,161	22,491
Chauffeurs	2,343	3,289	3,775	2,743
Chauffeur renewals	4,962	6,626	8,873	7,509
Examinations	1,215	4,630	5,424	4,009

* No distinction then made between private operators and chauffeurs in renewals.

CONTRASTS SHOWING THE WIDE APPLICABILITY OF MOTOR VEHICLES



A



B



C



D

A—Suggestive of a "Two-Family" Coach—A New British Design Seating Thirty People. B—Dr. and Mrs. H. C. Newton, of Chicago, Ill., Atour—Their Franklin Car Arranged for Sleeping Purposes. C—Same Car Serving as a "Dining Room." D—The "Flying Squadron" of the Michigan State Telephone Co. Its Rapid Truck is Used in Transporting Poles and Equipment Within the Fifty Miles Radius of Detroit.

OVER-PRODUCTION CHIEF DANGER

Hugh Chalmers's Views of Future of the Industry—Percentages That Must Be Reckoned With.

While issuing a solemn warning against the dangers of over-production and at the same time expressing the conviction that the future of the automobile industry lies in the thoroughly standardized medium priced car, Hugh Chalmers, of Detroit, offers the prediction that 1912 will be a most prosperous year.

"Those manufacturers who build cars of high dollar-for-dollar value and at the same time refrain from over-production, have nothing to fear from the future," is his way of summarizing the idea.

"With a great many of the standard cars for 1912 already announced, and with a new manufacturing season well under way, I have no hesitancy in predicting that 1912 will be a most prosperous year for the automobile industry," he declares in an article appearing in the *Scientific American*. "I do not say that as a mere matter of form," he continues, "but because I really believe it. Every large manufacturer of motor cars is vitally interested in the prospects for business. I know of many men in the industry who, after careful investigation of conditions, have arrived at the same opinion as myself.

"In my opinion success in the automobile industry depends upon the solution of a manufacturing problem. The days of rapid fire manufacturing and selling, of pyrotechnics and hail-fellow-well-met methods are past. We all know that water will reach its level. It cannot flow up hill and it is bound to flow down as soon as some of it is drained away.

"The water has been drained out of the automobile industry.

"I believe there is a tremendous market both in the United States and abroad for American-made automobiles. I consider this market will last not only this year and next year, but for many years to come. Yet it is possible in any one season to flood this market. Over-production is the greatest danger to the automobile industry; or, at least, to those manufacturers who do not immediately realize that building and selling automobiles is a manufacturing proposition just like the building and selling of any other commodity.

"There is a great market, for instance, for adding machines. Yet it would be ridiculous to think that manufacturers could build two or three hundred thousand adding machines every year and not flood the market.

"I think some manufacturers of automobiles have not yet come to a full realization of the fact that they can build too many cars. Those manufacturers, I surmise, are

apt to find 1912 a very hard season before they are through with it. There are some who may find themselves in serious difficulties in the next couple of years unless they plan more conservative operations than they have attempted in the past few years.

"Every manufacturer must realize that for every thousand of population there is only a certain percentage of men of enough means to buy motor cars. The automobile manufacturer must consider his market. The percentage of people of means in every community is almost as exact as the mortality rates. Only trouble can result from trying to go beyond the fact.

"In my opinion the future of the automobile industry lies in the thoroughly standardized medium priced cars. The higher priced cars have a much more limited market than the medium priced cars. They cannot be built in as large quantities, and yet, quite as elaborate manufacturing facilities are required for their production. On the other hand, there are on the market at this time a number of medium priced cars which will give to the average buyer all the service he could purchase at any price. For this class the future business possibilities seem to me to be practically unlimited.

"I believe, too, that the market for the American medium priced car will extend to all of the automobile centers of Europe. There can be no question but that the American manufacturer is better equipped to build a good medium priced car than his European competitor on account of both his standardization method and quantity production of such machines.

"But the medium priced car which is to be a continued success must be well built, well finished and well equipped. It must be able to compete with high priced cars, without discredit to its owner. To this end all of the leading manufacturers are working.

"In this matter of greater automobile values one again has purely a manufacturing problem. The high-grade, medium priced car of the future, I suppose, is going to be possible only in an economically conducted factory. I believe this means eventually that nearly all standard manufacturers will be making most of their parts in their own shops.

"In the methods of manufacture, too, there have been opportunities for extravagance and waste which, unless eliminated, will create disastrous disproportion between price and value.

"I warrant that most of the recognized standard manufacturers have been giving the public more value each year for their money, and I believe that most of these standard manufacturers have now reached the point where they are making only a legitimate manufacturing profit, and in some cases are not making nearly as big a percentage as is considered perfectly legitimate in standard lines."

WHERE GOOD ORDERS ARE WAITING

Singapore District Well Worth Cultivating, Says Consul—High Price No Bar to Business.

The importance of this market can not be too strongly emphasized, but caution must be exercised in the introduction of cars, writes American Vice-Consul General Figert, at Singapore, S. S. The percentage of cars furnished by the United States from 1905 to 1910 steadily decreased. The cause can readily be traced to the very poor models shown during that period. One high-grade car imported was abandoned after a short ownership fraught with trouble in obtaining duplicate parts, etc. Once these conditions are intelligently met, a large part of this great and rapidly increasing trade should be diverted to American channels.

One of the largest American motor car companies has recently established an agency in Singapore in charge of trained demonstrators sent from the United States. This agency will introduce four American cars—the Maxwell, Columbia, Sampson, and Stoddard-Dayton. Heretofore the market for low-priced cars has been practically monopolized by Ford. Another American motor car, the Hudson, has just arrived, and representatives of the Hupmobile are on their way to Singapore, having already received assurances from a local garage that if the car measures up to expectations, a large share of business can be promised the company.

Although the market has been 80 per cent British heretofore, there seems to be reason for supposing that the balance of trade will eventually swing toward American products.

There are 100 miles of road in Singapore, 800 miles in the whole of the Straits Settlements, and 3,439 miles in the Federated Malay States. The Singapore district is noted throughout the Orient for its excellent motoring roads. The present population of Singapore is estimated at 325,000, as against 228,555 in 1903. In 1901 the population of the Straits Settlements was 572,249; of the Federated Malay States, 678,595. At present it is safe to assume that it has passed the 1,000,000 mark.

In 1909 about \$371,000 worth of cars was imported and \$150,910 worth was exported to other countries, the more important of which are the Federated Malay States, the Netherlands Indies, and the Philippine Islands, the majority probably intended for local plantations. As there are 650 rubber plantations alone shown in the last directory (and many more not catalogued), the possibilities of the market can readily be seen.

Not only are machines necessary for the managers of large plantations, but the Chi-

nese, who possess most of the wealth of this district, are willing to spend large sums for cars luxuriously fitted out, and which will hold a family of 6 or 8. As a rule, the wealthy Chinese of Singapore have special cars for pleasure purposes. There is now on exhibition at one of the local garages a car costing \$8,000 gold purchased by a wealthy Chinaman from the settlement of Malacca. Money is no object where the question of luxurious fittings is concerned. It is probably that if a high-priced American car were simply shown in the market and prospective buyers were given trial runs, it would be the opening wedge of a profitable trade. No high-priced car has yet been offered for sale here; and, naturally, when a Chinaman wants a car he buys what is here for sale, and what he knows by actual experience to be reliable.

A few years ago there were less than half a dozen American cars in the market. These were introduced by the traveling representative of a New York general import and export house. Later a local agency was established, advertising space about 5 inches square was obtained in the newspapers, and up to date over 50 cars have been sold in Singapore, with the sales rapidly increasing. Practically the entire increase in the sale of American machines here is due to the activity of this one firm. The car referred to has practically displaced all foreign cars of the same grade, and at the present moment other garages are endeavoring to decide which American car shall be imported to compete with it. This has occurred with a low-priced car.

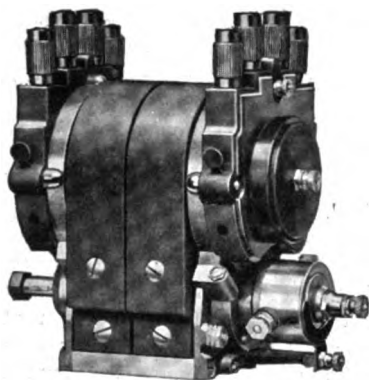
One important feature of the local trade which has to be either met or overcome is the insistence of buyers on special fittings. British and foreign manufacturers do not standardize their cars to the same extent as do Americans. Consequently quotations are made without including lamps, tops, extra tires, etc. As a result, all orders differ from each other as to fittings. Chinese are more difficult to satisfy in this respect than Europeans. Two cars of the same horsepower, build, wheel base, etc., may sell for prices differing \$500, due solely to the fittings, which, in many cases, amount to as much as 40 per cent of the value of the car. An invoice shown by a local importer covers just such a case. The car was purchased by a European, and the invoice was styled as "conservative." Special paint, decorations, upholstery, lamps, wheels, tires, mud guards, top, wind shields, etc., were included in the specifications. When the total of the fittings on this invoice was taken, it was found to be 35 per cent of the price of the car.

Another feature to be taken into consideration is the indifference of the wealthy Chinaman as to horsepower. He does not want speed for pleasure; he wants comfort and luxury; and the fact that one car is 10 horsepower stronger than another will not constitute a decisive argument in its favor if the fittings do not appear as good.

MAGNETO THAT INCREASES POWER

Splitdorf's Double-Distributor Type Now on Open Market—Its Advantages Due to Multiplication of Sparks.

Multi-point ignition, while fairly well known in the racing field and in engineering circles, has not been offered to the public until this year. Already there are indications that it will be used on a number of forthcoming models, by no means the least important circumstance being that the introduction of the double spark will involve an increase in power with no corresponding increase in weight or size. According to figures which are being issued by C. F. Splitdorf, of New York, in connection with the announcement of his new double distributor type magneto, the mere



SPLITDORF NEW TWIN-SPARK MAGNETO

use of twin sparks on opposite sides of a T-head engine may result in as great an increase of power as 15 or even 20 per cent. For the L type of cylinder an increase of from 8 to 15 per cent is claimed, and in the standard form of valve-in-the-head motor, an average of 10 per cent.

The Splitdorf double distributor magneto possesses this visible distinction from the standard type of high tension instrument, that while there is but one circuit breaker, as in the ordinary type, two high tension distributors are employed, as is implied by the designation of the type, one of them being mounted at either end of the magnets. Two sets of independent leads run from the distributors to the two sets of spark plugs, which, of course, likewise are independent in action. Their sparking is absolutely synchronized, however, for the reason that the primary current for both secondaries is let through a single distributor. The picture plainly shows the relatively simple and easily understandable nature of the arrangement.

The principle upon which the increased power depends is that of more rapid inflammation of the charge. As ignition occurs simultaneously at two different points in the cylinder it follows that the interval between the break of the interrupter points

on the magneto and the instant of entire inflammation is proportionately lower than when ignition is effected at one point only. In consequence the maximum pressure is realized much earlier in the stroke, notwithstanding the fact that the advance of the spark can be partially if not wholly dispensed with. Getting rid of the advance also involves a reduction in the back-pressure on the connecting rods and bearings, thereby rendering the action of the engine smoother and prolonging its life. As better combustion is assured with the multi-point sparking system, it also follows that engine efficiencies are apt to be higher when it is used, which is much the same as saying that the effective mileage of a gallon of fuel will be proportionately increased.

Tube That Extracts Water From Gasolene.

Notwithstanding painstaking methods of filtering gasolene, both before and after it is put into the tank of the car, the fact remains that engine operation often is more or less hampered through the presence of water in the fuel. For extracting such "last drops" as accumulate when ordinary precautions fail the Motor Supply Co., of Waterbury, Conn., has brought out a little device which is suggestively termed the Dry Gas tube. It consists of a small perforated metallic shell, something less than an inch in diameter and about two and a half inches long, which is packed with a substance which is capable of absorbing water, but which is not saturated by other liquids. When immersed in the fuel tank, therefore, the tube will absorb any particles of water which may come in contact with it, retaining the moisture for an indefinite period. When in use, a wire from the tube is attached to the lower side of the filler cap, so that the tube may be drawn out occasionally and its "charge" of water extracted. This is accomplished by the simple expedient of baking the cartridge in a moderately hot oven. While the device is capable of retaining three ounces of water—more than would accumulate in a fair sized tank in from four to six months' filling, the manufacturer asserts, it is recommended that the baking process be repeated about once in three months.

Brakes That Cause Wear on Bearings.

Despite the care that is being exercised in brake design, many brakes are so constructed that when applied, pressure is brought to bear on the shaft on which the brake drum is mounted. The fault, of course, is inherent to the construction and seldom can be remedied without making rather extensive alterations. It is noteworthy, however, as affording a possible explanation for the rapid wear of the rear transmission bearings of certain makes of cars which are arranged to be braked at that point.

REFINEMENT OF STEVENS-DURYEA

Distinctive Features Retained but Improvements Effectuated in Details—Prices Advanced but Equipment Enlarged.

In keeping with the present tendency to relieve the purchaser of the annoyance and expense of selecting and fitting up a full complement of accessories for his new car the Stevens-Duryea Co., of Chicopee Falls, Mass., has arranged to furnish a complete equipment with its model AA cars as hereafter produced. Whereas a liberal assortment of fittings has been included hitherto now practically nothing but the gasoline and oil will be required to put the machine in condition for the road. Among the striking features of the new specifica-

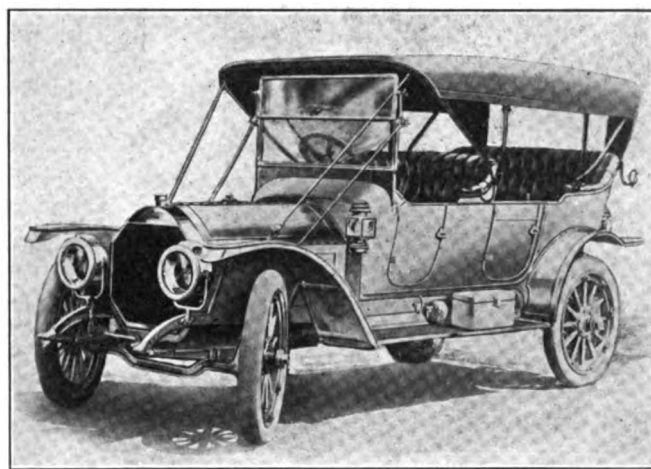
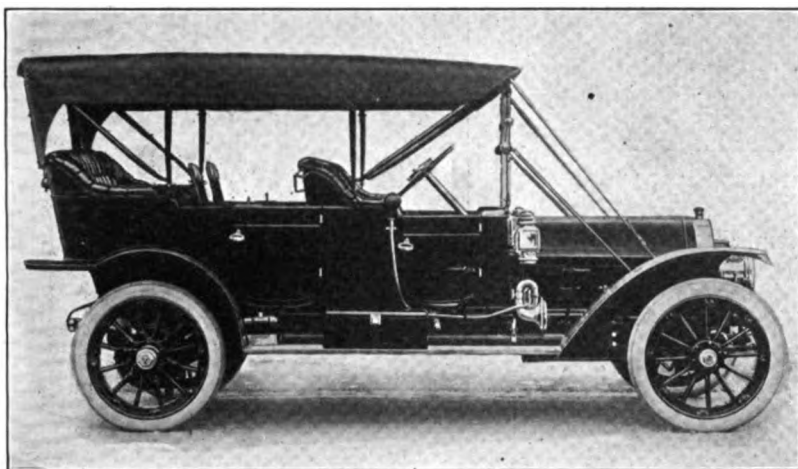
let and Berline, which complete the line, will continue to be sold at \$4,750, \$4,950 and \$5,000, respectively, with the additional equipment and including the complete array of interior accessories which has accompanied them hitherto. All bodies now are equipped with front doors, the gear shifting and emergency brake levers being mounted at the right end of the footboard, but inside the body. Save for the speedometer, the kick-switch of the new ignition system and the gas adjusting lever, a clean dash is now presented; the four control pedals being arranged on the incline of the toe-board.

In stating that the construction of the AA chassis is to remain practically unchanged it is implied that its manufacturer is as steadfast in adhering to the principle of the six-cylinder motor as it was five years ago, when it introduced its first sextuple engined car. Likewise the unit type

these thin-walled containers is liable to leakage through wrenching strains.

The cylinders of the engine, the dimensions of which are $4\frac{1}{4} \times 4\frac{3}{4}$ inches, bore and stroke, are cast in pairs and are designed with the valves placed side by side on the left of the power plant, their actuation thereby being effected through the operation of a single cam shaft. The latter is driven from the rear of the motor, instead of from the front, as is more common practice, a pinion actuated by the cam shaft gear serving to drive the magneto shaft. The circulating pump and force-feed lubricator are mounted on the right side of the motor and are driven by an auxiliary shaft on that side.

Double ignition is employed, as heretofore, but the Bosch "two independent" magneto system now is used, instead of the independent magneto and six-unit formerly employed. The new system embodies the



STEVENS-DURYEA AA SIX-CYLINDER: SEVEN-PASSENGER STANDARD AND FIVE-PASSENGER TORPEDO TYPES

tions, which are common to the five different types of open car in which the AA model may be obtained are a four-bow top, with side curtains and slip cover, adjustable windshield, a mechanically operated tire pump, speedometer and gasoline gauge, these being features which have been added to the former list. In addition the combination oil and electric side and tail lamps, specially designed headlights and Prest-O-Lite tank, demountable quick detachable rims, single tire irons—or double on the seven-passenger car—shock absorbers in the rear, foot and robe rails in the tonneau, horn and full tool equipment also are included. While in practically all respects the construction of the car is to remain unchanged the addition of the complete equipment has led to an increase in price of \$250 on the open models.

The standard five-passenger touring car will sell for \$3,750 hereafter, instead of \$3,500, as will the hooded dash, five-passenger and light four-passenger touring cars. The five-passenger torpedo will sell for \$3,850 instead of \$3,600, while the standard seven-passenger touring car will list at \$3,900. The prices of the limousine, landau-

of power plant with its unique three-point suspension system, which has remained unchanged in principle since it was originated in 1904, is continued. The crank case being continued to the rear forms a compact housing and frame for enclosing and supporting the fly wheel, clutch and change gear mechanism. An arm on either side of the crank case in front serves to support the forward end of the unit, while the rear end is pivoted from beneath by means of a king-pin arrangement, which is carried by a downward-arched cross-member of the frame. Frame weaving thus may go on indefinitely without subjecting the power plant to the slightest strain.

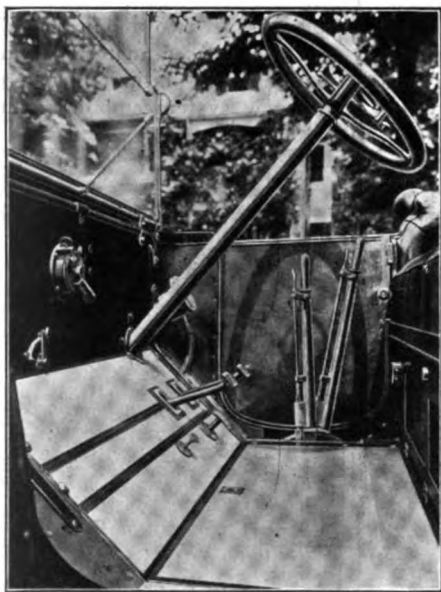
As proving the thoroughness of the designer's belief in the three-point support idea it also may be observed that the radiator and even the gasoline tank are supported in the same way. The radiator is carried by the frame members at either side and stayed by a rod, which also forms the ridge-pole of the bonnet. The gasoline tank, which is located under the front seat and so delivers its supply to the carburetor by gravity flow, being carried in the same general way, it follows that neither of

standard form of high-tension magneto and a single dash-mounted coil with kick-switch made integral with it and combined timer-distributor. The latter is mounted on a vertical shaft at the rear of the motor and immediately in front of the dash. It is in the same position as the commutator formerly employed, is perfectly accessible, and provides for a convenient arrangement of the wiring. As two sets of plugs are used, one set being mounted over each set of valves, it follows that either system may be used independently of the other, or both may be used at the same time.

The new air pump, which is of the four-cylinder type, is mounted under the hood in front on the left side of the engine, where it is firmly supported by an aluminum bracket. It is driven from the forward end of the cam shaft through an idle pinion, which may be shifted axially by means of a conveniently located lever, thus engaging or disengaging the driving gear and the pinion on the end of the pump shaft. The nipple to which the hose for inflating the tires is connected likewise is located in an accessible position.

Splendid features about the engine which

are of further note include the lubricating system. This is comprised of a force-feed lubricator, which supplies the main bearings of the crank shaft, the overflow from the bearings serving to replenish the supply in the crank pits, from which the remainder of the internal moving parts are supplied by the splash of the cranks. The individual feeds of the lubricator are provided with independent sight-feeds, permitting accurate adjustment to be made, while by a special refinement in the valve tappet mechanism surplus oil is trapped in the guides and returned to the case, instead of being permitted to work to the outside of the motor and collect dust and dirt.



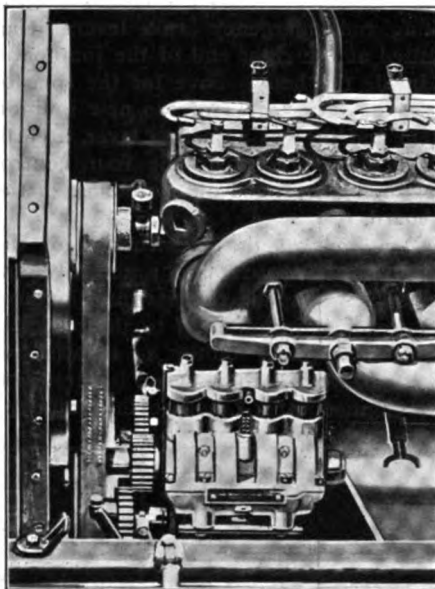
SHOWING NEAT CONTROL ARRANGEMENT

The clutch is of the dry-plate multiple disk type, driving direct to the change gear mechanism, the usual intermediate flexible connection being dispensed with because of the unit construction of the plant. The design is such as to render all thrusts self-contained, save when the clutch is released, while the provision of a ball-bearing collar for effecting the disengagement of the plates ensures sufficient freedom of movement for the clutch shaft to warrant the elimination of the clutch brake.

The progressive type of change gear is retained, the mechanism being distinguished by the introduction of the neutral relation of the system between first and second forward speeds, as determined by the position of the gear shifting lever. The extreme rear lever position engages the reverse, while lifting the latch, which serves to locate the intermediate speed when the lever is moved forward from neutral, permits it to be moved to its extreme forward position, thereby engaging the positive clutch which affords the direct drive or high speed.

A central lubricating chamber in the cross which forms the central member of

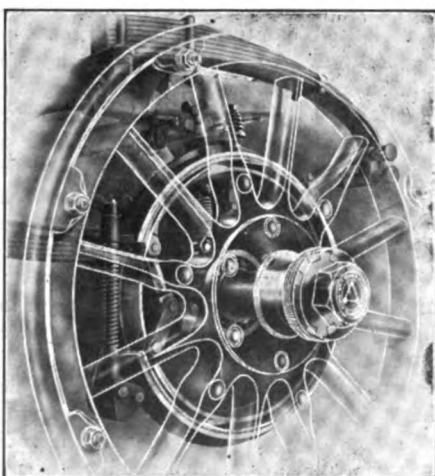
the universal joint construction in the propeller shaft ensures the thorough oiling of the parts at all times, the oil being distributed by centrifugal action. Two joints are used, the torsion stresses of the driv-



NEW TIMER-DISTRIBUTOR ARRANGEMENT

ing bevel gears being absorbed by means of a bar at one side of the shaft, which is anchored to the cross frame member in the waist of the chassis. In mounting the universals on the shaft the squared method of connection is employed instead of the less expensive method of keying. Indeed, the use of the squared shaft ends in place of round surfaces with keys, is one of the structural features peculiar to this member of the sterling group of New England cars.

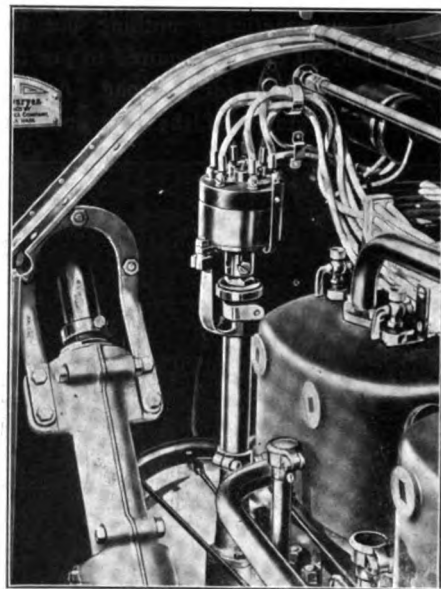
Spur differential gears are used in the



STEVENS-DURYEA ADJUSTABLE BRAKES

original full-floating rear axle. The wheels and shafts turn in annular ball bearings, as do the change gear shafts. The front wheels, however, are mounted on taper roller bearings. Semi-elliptic springs 48

inches long, instead of 40 as formerly, are used in front, and three-quarter elliptics in the rear. External-internal brakes are used, the service set, which is of the contracting pattern, being equipped with a simple and effective adjustment by means of wing nuts, which are readily accessible. The standard wheel base is 128 inches and the tire equipment for all cars except the seven-passenger touring type is 36x4½ inches, front and rear. The large touring car is fitted with 36x4½-inch tires and 37x5 in the rear. Among further refinements of detail may be mentioned the provision of large-sized grease cups on all spring hanger bolts and even on the levers, the placing



THE NEW TIRE-INFLATER INSTALLATION

of the steering connections above and at the rear of the front axle and the provision of locks for the tire irons and the various battery and tool lockers about the car.

Austrian Army's Automobile Equipment.

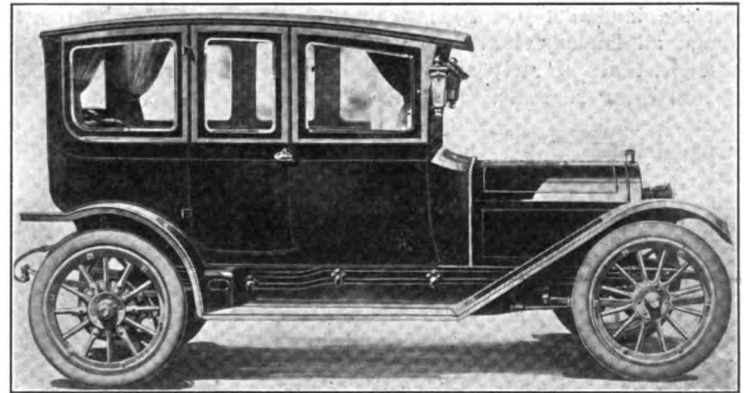
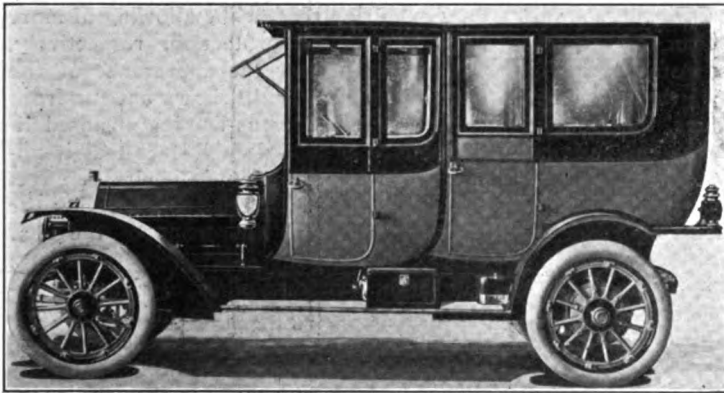
Austria is going in for military motor vehicles with considerable ardor. Already the army authorities own 90 road units, of which 29 are tractor wagons, each equipped with an 80-horsepower motor and arranged to haul three trailers. There are, besides, eight traveling work shops, two complete road trains, 28 motor lorries, 12 light vehicles, two trucks equipped with cable winches and nine searchlight wagons. The military organization also is carrying out an extensive subvention plan which ultimately will provide over 260 trucks for service on requisition. Some \$400,000 have been provided for the subsidy of industrial machines of the stipulated five-ton pattern, each equipped with a trailer. Owners of such equipment are entitled to a subsidy of \$1,500 the first year of ownership, while during subsequent years an annuity of \$200 will be paid. While in service maneuvers operators providing trucks will draw \$7 per day per machine.

The Closed Car; Large Differences Made by Small Lines

The placing of a line—just one single line, curved or straight, often is the means of making or marring a picture. If the picture is a portrait, the whole expression may be changed with a stroke of the pencil or brush; if it is of an inanimate object, the omission or the addition of a line may change its whole aspect. And exactly the same rule obtains in the designing of automobile bodies. To be successful, the automobile designer must be just as much an artist as an artisan. Though an automobile is not supposed to be a "joy forever," it must be, at least, more or less a "thing of beauty." But, primarily, it must be a "thing of comfort," to paraphrase the

dendency to get away from the coach idea by presenting a straight-line effect with a minimum of curves and other embellishment. Others, equally recent, reflect in a strong degree a tendency toward curves, and both types have an almost indefinable air of beauty about them. Of the former, the Stevens-Duryea "Berline," which is illustrated in Fig. 1, suggests little of the coach with its straight lines, and yet the division of the body between the driver's and the passenger's compartments does suggest the coach, inasmuch as the old French public stages invariably were divided into three compartments, "the coupe in the front, the interior in the middle

front end of the door. If that little curve at the bottom of the front of the door had been reversed the effect would have been entirely different. The body would have appeared like a single body and either end viewed alone would not have appeared quite so complete. As it is, the whole is harmonious and yet either end viewed separately is complete. Another of the interesting structural details of this particular body is the curved roof. From a purely esthetic point of view, the combination of curved roof and outwardly curving ends is pleasing; from the more practical point of view of the passengers it is pleasing also in that it provides a more commodi-



TYPES OF FULLY ENCLOSED CARS—FIG. 1—STEVENS-DURYEA BERLINE; FIG. 2—COLE "LONDON LIMOUSINE"

old saw, and there are few problems which face the modern designer that are more difficult of solution than the combination of pleasing lines and comfortable interiors in closed bodies, whether they be of the orthodox limousine type, the small coupe, wherein two is company and three undoubtedly constitutes a crowd, the landaulet or the completely enclosed body which is variously named but which more generally is styled the Berline or Berlin body.

Just what will be the ultimate idea embodied in the construction of closed bodies, or the impression which will be conveyed by their appearance, is difficult to forecast. The first closed bodies that were built, and for that matter the open bodies as well, naturally followed the general lines of and suggested the old time coaches. That is to say, they were creations of flowing lines and multitudinous curves. Later, however, with the development of the automobile, new types of bodies were evolved, and though in appearance they suggested in constantly lessening degree their prototypes of the stage coach age, they still retain, even today, not a few of the earmarks of those antiquated diligences.

Several of the late designs show a ten-

and the rotonde in the rear." The "rotonde," in this case, is missing, of course, though the "interieur" and the "coupe" remain.

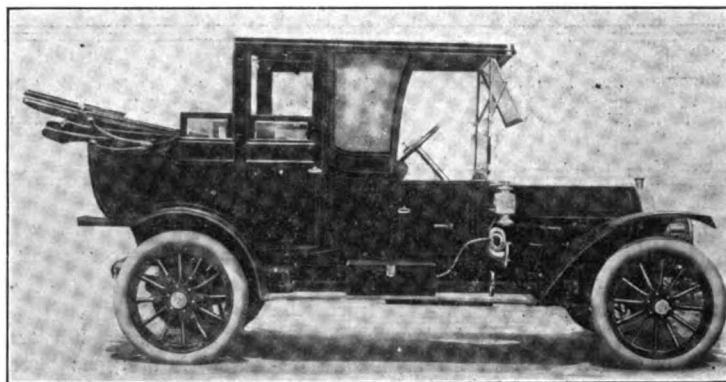
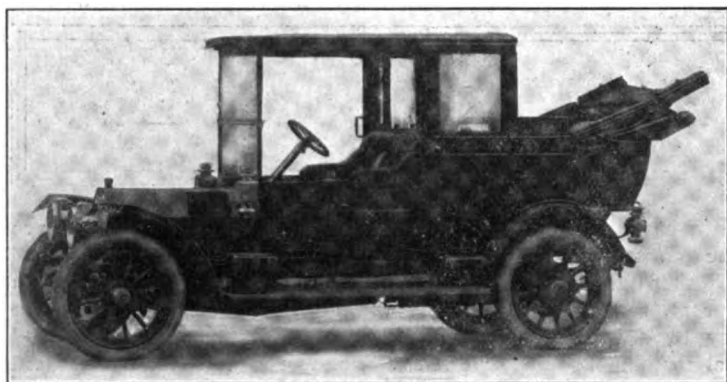
One of the peculiarities of this body, and in fact of nearly all other closed bodies, is that each half—if it may be so styled without danger of straining the meaning of the word overmuch—forms a distinct unit when viewed alone. The rear compartment is complete without the forward one and the forward one is complete without the other. Which is to say, that if a card is placed over the illustration so as to cover either one or the other, the remaining compartment will not look outre. Both are complete, finished bodies and this effect is obtained by the simple expedient of building the front ends of each of the "halves" with a forward curve at the front and bottom. Naturally the slight difference in the height of the window sills and the difference in color increases the effect, which, however, is due principally to those apparently insignificant curves.

The same effect may be noted in Fig. 2 if either end of the illustration, which shows the new Cole "London limousine," is covered up to, but not including, the

ous interior, both of the considerations of beauty of outline and comfort thus being happily obtained.

In the Regal "20" Colonial coupe, which is illustrated in Fig. 5, may be noted almost the same curved roof as is shown in Fig. 2. It differs, however, in that the longitudinal curve is more marked while the transverse curve is less marked than in the other. The unmistakable colonial effect is obtained through the medium of the latticed windows, which, together with the harmoniously curved roof and ends, give the whole body an air of beauty and at the same time of strength and stability. Further increasing the appearance of stability, the underhung frame also permits of a low entrance, a feature which is more or less in demand by the fair sex.

Illustrated in Fig. 6, the Brush coupe resembles the Regal only in that like it it is driven from the inside. It has but a single door, and as the car is operated from the left side, the door is at the right. Incidentally the picture shows graphically one of the principal advantages of the left hand drive, viz., the facility with which passengers may enter or leave the car when it is drawn up to the right hand curb, in which



LANDAULET DESIGNS—FIG. 3—LOCOMOBILE CLOSED FRONT; FIG. 4—STEVENS-DURYEA SHELTERED FRONT

position vehicles usually must be stopped. The roof of the car also shows a slight curvature, allowing more head room, and the same forward curve at the bottom of the front panels, which gives a finished appearance, is plainly visible.

For those who prefer a car which can be made into a closed or semi-open one at will, the landaulet has been devised, and though all landaulets are alike in general principle, there scarcely are two which are alike in other respects. In both of those which are illustrated by Figs. 3 and 4, the former being a Stevens-Duryea and the latter a Locomobile, the same forward curve at the front of the back doors which gives the appearance of two separate bodies, while at the same time preserving the harmonious effect of the whole, again is noticeable. Added, primarily to increase the comfort of the driver, the high front doors and the partial closing in of the front compartment is shown in Fig. 4, tend to heighten this separate body effect, though such features hardly can be said to detract from the general appearance of the body. Slightly less protection for the driver almost is balanced by the greater ventilation which the lower front doors and otherwise open front compartment on the Locomobile body permit.

Concretely, there really is very little difference in appearance in many of the ex-

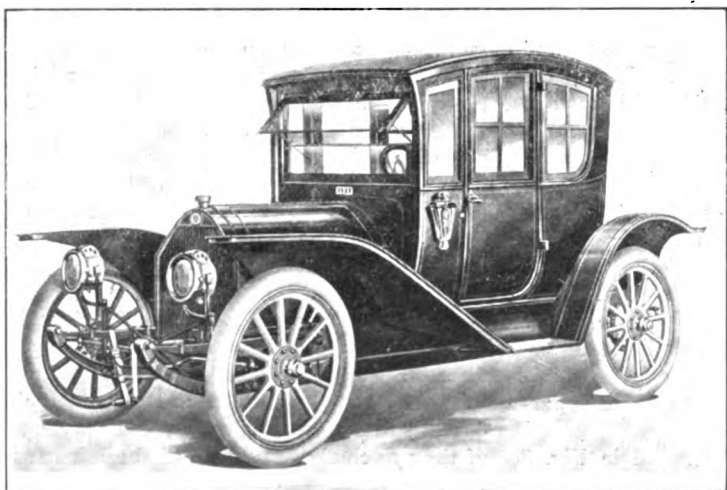
isting types of closed bodies. In the majority of cases the differences which are apparent are due to slight variances, and while it almost might be said that the whole effect is changed, it often is difficult to determine just what causes the dissimilarity. Also in nine cases out of ten all such slight changes or modifications are intended primarily to increase the comfort of the passengers rather than for the sake of mere appearance. For instance, in Fig. 7, which shows part of the Chalmers "Thirty-six Berlin" limousine, the front of the body is carried out to the engine hood, which is to say there is no skuttle, and while this necessitates a slightly longer body to permit of sufficient leg room for the operator, and thereby undoubtedly changes the general aspect of the body, it also allows of larger windows and incidentally more light in the car and on the dash apparatus.

Illustrated in Fig. 8, which is Owen practice, on the other hand, is a well-defined skuttle, and the front compartment therefore is slightly shorter. Protection from the glare of the sun which the extended roof affords is obtained, but properly speaking there is no real extension, or only a very slight one, the front of the body being brought up to meet the roof in a gradual curve. Though the fact that the car is of the left hand variety naturally

changes its appearance to a marked degree, it is apparent that it was for other reasons that the steering wheel and control levers were so placed.

Knox construction, illustrated in Fig. 9, also provides a skuttle and, like the Owen, curves at the bottoms of the doors are symmetrical. Narrow windows and a fairly long extension roof, while allowing of more light and added protection, respectively, also serve to alter the appearance of the body. Though Fig. 10 shows but the front portion of the Stevens-Duryea enclosed limousine, it is a noticeable fact that it appears perfectly complete in itself, the effect being obtained, as stated previously, by the forward curves at the front of the rear doors. The slightly shorter extension roof and larger windows allow of a lighter interior, and another of the points of variance—one which goes further toward changing the whole appearance of the body than might be supposed—is that the curve where the skuttle joins the dash is concave rather than the more conventional convex.

Coupe bodies usually follow the general lines of the larger closed bodies, though as often as not they possess a distinct individuality all their own. Thus in Fig. 11, which shows the new Cole Colonial coupe, an unmistakable limousine-effect is obtained by the swinging glass front, the advantage



INSIDE DRIVEN COUPES—FIG. 5—REGAL COLONIAL UNDERHUNG; FIG. 6—BRUSH STANDARD WITH LEFT-HAND DRIVE



FIG. 7—COLE

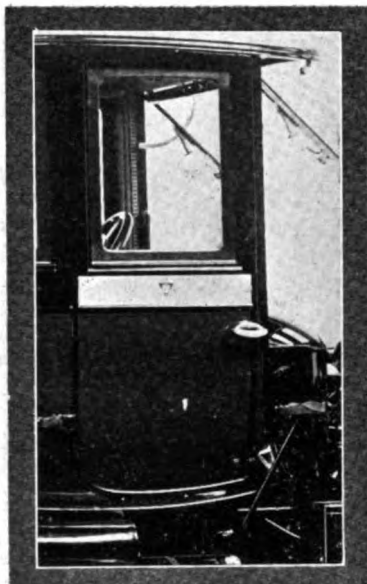


FIG. 8—PACKARD

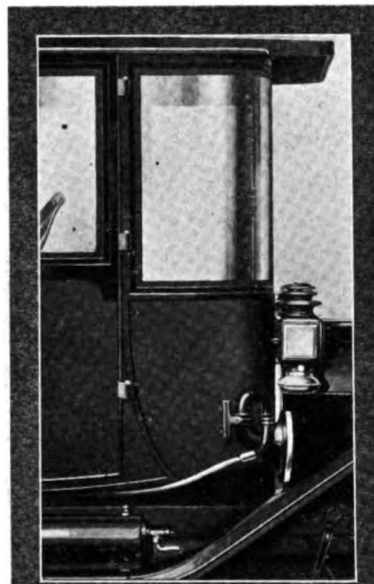


FIG. 9—CHALMERS

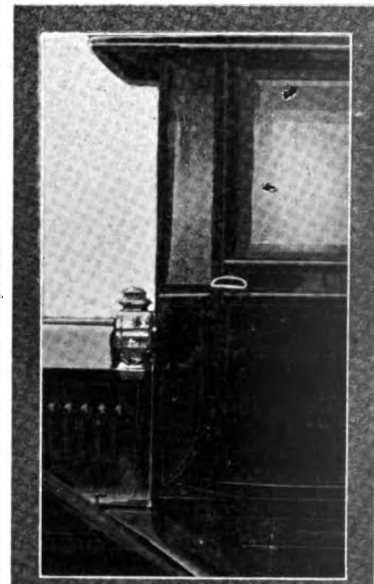


FIG. 10—WARREN-DETROIT

STUDIES AFFORDED BY CONTRASTING CONSTRUCTIONS OF COUPE FRONTS

of which is that the operator may look under it and still be protected in case of stormy weather, while at the same time a degree of ventilation scarcely possible otherwise is obtained. On the other hand, its equally unmistakable colonial effect, which is due to the curved roof and front and the latticed windows, is unlike the usual type of limousine.

In Fig. 8 the same swinging glass front is noticeable and in addition slightly more leg room is provided by a deeper skuttle. The treatment of the center panel of the door also is apparent, in that while it serves no particularly useful purpose, it relieves the car's somewhat sombre appearance. Permitting of a lighter interior and more room between the passengers and the actual front of the car, the curved glass front of the Chalmers coupe, shown in Fig. 9, gives the car the appearance of what in carriage parlance is known as an extension brougham. Another of the distinctive points is that the doors open in the reverse

direction to that in which doors generally are arranged. As to whether or not this is an advantage there is considerable difference of opinion, but a number of recent converts to it seem to show a tendency in its favor.

Somewhat the same extension brougham effect is apparent in the Warren-Detroit coupe shown in Fig. 10, with the exception that in this case it is obtained through a sort of bay window effect. Manifestly, however, it is results rather than effect which is sought after by the designers, the results being lighter interiors, better ventilation and more room. A close examination of the picture reveals the fact that this body also is equipped with a swinging glass front which may be opened or closed at will.

As may be seen in the accompanying illustrations, Figs. 15 to 18, doors are susceptible of a variety of treatment, and that the treatment almost invariably is the reverse of that which obtained in the old days of

the stage-coach, when curves generally were made symmetrical. The Pierce-Arrow George Washington coach door shown in Fig. 15 is noteworthy because of the black beading at the edges. The treatment is attractive, it relieves the monotony of a single color, while at the same time the scheme is not obtrusive. Practically the same scheme is carried out on the door shown in Fig. 18, though the difference in the curved lines in one and the almost severely straight ones in the other is apparent at once. The low and easy entrance of the Thomas brougham town car, shown in Fig. 16, made possible by the use of a double drop frame, is the principal point of interest. Fig. 15 shows the conventional type of limousine door, which has been popularized through its very simplicity.

Contrasts are quite as marked in the backs of closed bodies as they are in fronts, and in this case as in the case of fronts, though beauty of outline is one of the principal objects of the designer, other con-

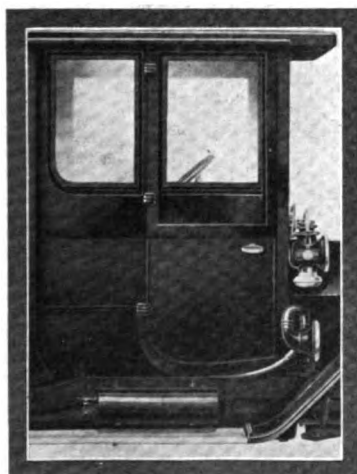


FIG. 11—CHALMERS

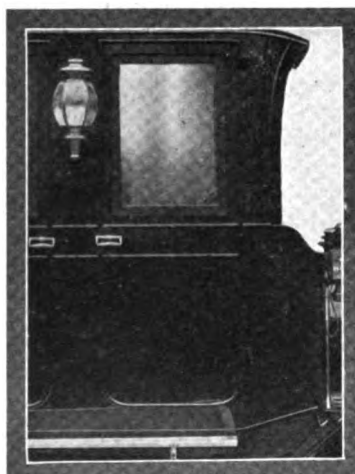
FIG. 12—OWEN
VARIED STYLES IN DESIGN OF DOUBLE LIMOUSINE FRONTS

FIG. 13—KNOX

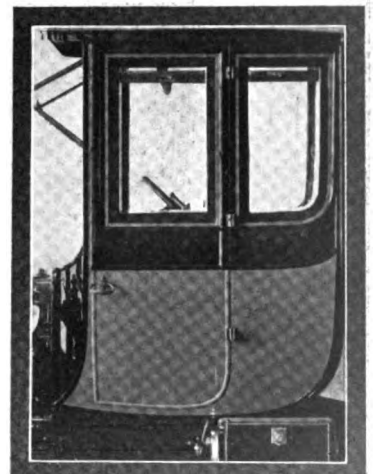


FIG. 14—STEVENS-DURYE



FIG. 15—PIERCE-ARROW

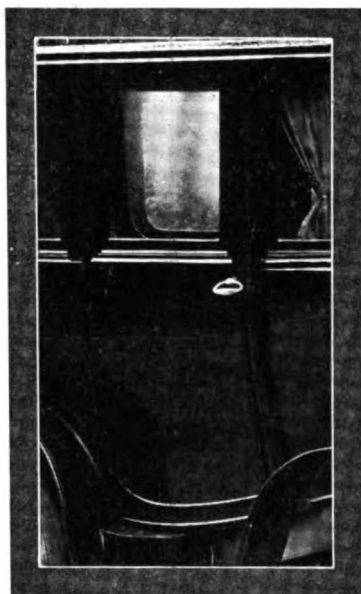


FIG. 16—THOMAS

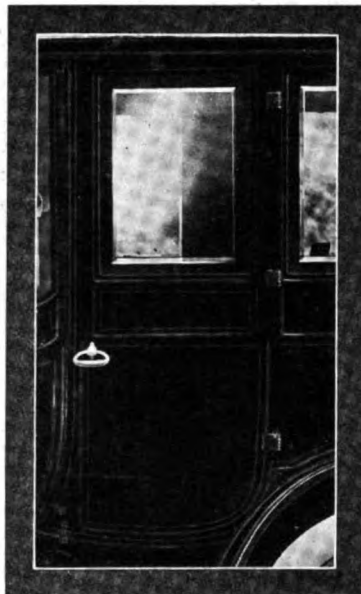


FIG. 17—STEVENS-DURVEA

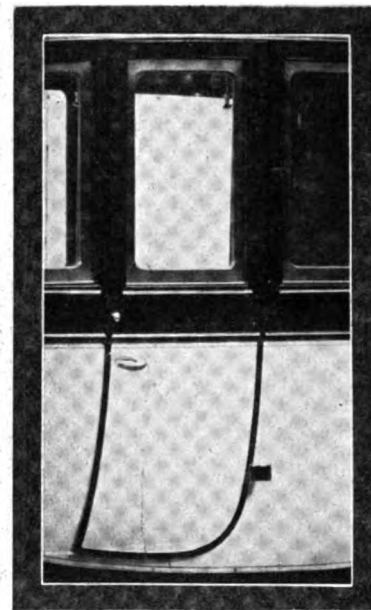


FIG. 18—PACKARD

DEPICTING CONTRASTS IN THE TREATMENT OF LIMOUSINE DOORS

siderations, such as roominess and comfort, seldom if ever are sacrificed for mere looks. The graceful curve where the back is carried up to meet the roof in Fig. 22 unquestionably enhances the beauty of the body, but primarily it gives greater roominess. Nearly all limousine bodies now are extended well out over the wheels, and in this way the width of the seat is increased several inches, an example of this arrangement being shown in the same picture.

The arrangement in Fig. 21, which shows a Chalmers coupe, is entirely different. Less room is necessary in the body and therefore it is not carried out over the wheels. The placing of the gasoline tank on the rear allows of more storage space under the seats, and running boards, which might otherwise be encumbered with tool

and battery boxes, may be kept clear. The Locomobile body shown in Fig. 20 illustrates even more clearly the manner in which some bodies are carried out over the wheels to allow of greater seating capacity. The effect is increased by the shape of the mud guards. Fig. 19, in which the back of the Cole Colonial coupe is depicted, shows to better advantage than does the picture of the front of this car, the unmistakable colonial effect which the harmoniously curved lines and latticed windows give. But though the gracefully curved back and roof undoubtedly make for attractiveness, they also increase materially the comfort of the passengers, the convex roof allowing of greater headroom and the inclined back permitting at once more room and more comfortable seats.

Teetor Shows Magneto's Possibilities.

It has been stated, and probably it is true, that the common or garden variety of camel can go 14 days without "lubrication." Which is not extraordinary when it is considered that camels are "fearfully and wonderfully" built to meet just such exigencies. Magnetos, on the other hand, are not supposed to be run without lubrication, but that they will do so, though the practice is not to be recommended, was demonstrated by Charles N. Teetor, of Hagerstown, Md., who reports that he ran his Remy magneto not merely 14 days, but 14,000 miles, without oiling it or making an adjustment. Despite the unusually severe treatment, which was spread over several years, the magneto gave no trouble and continued to spark with its accustomed vigor.



FIG. 19—COLE

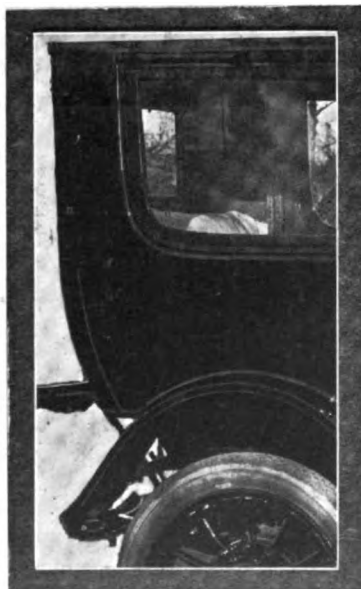


FIG. 20—LOCOMOBILE

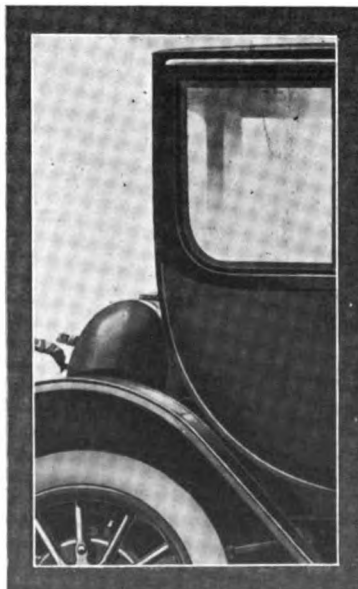


FIG. 21—CHALMERS

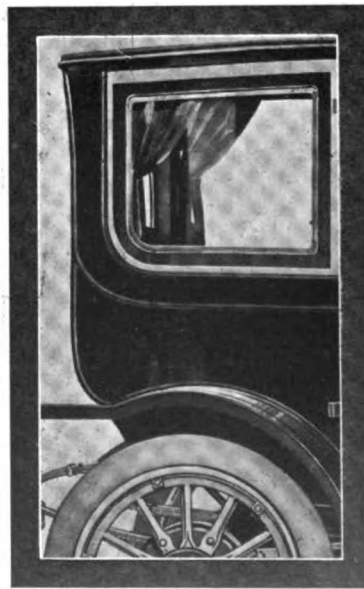


FIG. 22—COLE

ILLUSTRATING DIFFERENCES IN LIMOUSINE AND COUPE BACKS AND WINDOW EFFECTS

CHAUFFEUR DEFENDS HIS CALLING

**Crooks Comprise Small Minority—Blames
"Schools" for Most Evils—Wherein
Chauffeurs and Drivers Differ.**

"It is all very well for garage owners and garage managers to try to make it appear that chauffeurs are responsible for all the evil in the business, but if some of those men would look in the mirror occasionally they would be pretty apt to discover a few spots and a few streaks on their own persons," remarked a veteran driver, referring to the series of articles on the subject which have appeared in the Motor World.

"There are lots of tricks in the garage business, and there are lots of garagemen who are not above practicing them. The one who at a recent public hearing in New York denounced chauffeurs as a lawless class may have won considerable applause for himself, but I doubt whether he served any good purpose. We are not all crooks, nor do I believe there are many more crooks in this business than in any other. The jails of this country are pretty well peopled with bankers, but the fact does not imply that all bankers are crooks, nor that they comprise a lawless class.

"I have been driving automobiles for ten years, and think that is long enough for me to have become at least fairly well acquainted with not only chauffeurs but garagemen, and let me tell you that the chauffeur, like every other man, is largely influenced by his surroundings. If the garage in which he spends most of his time is conducted 'on the level,' the chauffeur himself is apt to be 'on the level.' The garageman who harbors the grafter, the joy-rider and other types of crooked driver is just as bad as the driver. The trouble with the average garage owner is that he looks at the almighty dollar even a little harder than the average man in other walks of life and closes his eyes to many things, when he does not actually become a party to them, solely because he is fearful that a dollar may get away from him.

"If any one truly desires to get at the real root of the so-called chauffeur evil, however, he need not go much further than the so-called automobile schools, which turn out chauffeurs almost while you wait. It looks as though about every other young man above the age of 17 imagines there is a lot of money and very little work in driving automobiles. I honestly believe that one-half of the men who handle the levers of passenger elevators in apartment houses and office buildings are possessed of the notion that they are qualified to become chauffeurs on short notice. The automobile schools appeal strongly to this sort of man and, as a result, the market is simply flooded with so-called chauffeurs who pos-

sess diplomas, or whatever you call the pieces of paper the schools furnish to their graduates.

"While it may be possible to learn how to push a lever or turn a steering wheel in the course of a week or two, it stands to reason that no man can even begin to learn the complications of a gasoline motor, or an automobile, in a month's time, yet thousands of so-called graduates are turned loose on the world who have nothing more than ability to drive a car and a very much confused knowledge of its internal arrangements. The woods are simply full of these 'graduates.' They can be hired for a song. In fact, they have pretty nearly ruined the chauffeur business.

"The chief result which the so-called schools have attained has been to let loose this army of half-baked chauffeurs and to bring down the wages of the really competent men. Garages and salesrooms are overrun with drivers seeking work, and an advertisement for a chauffeur in almost any New York daily paper will bring from two hundred to five hundred applications, no matter what may be the wages offered. If the 'schools' continue to turn them out at the present rate, the Lord knows what the end will be.

"The so-called graduates form a distinct class of chauffeur, and in a category not far removed is the chauffeur who gets into the business via the garage route, that is, the washer or helper in a garage who picks up a superficial knowledge of motors and acquires some skill in handling steering wheels and levers, but who is no more fit to take care of a car than a ten-year-old child. Occasionally a competent man may be developed by garage work, but if so it usually is because he has a natural aptitude for mechanics. To my way of thinking, however, the garage-bred chauffeur constitutes almost an impossible class. I certainly would not trust him with my car if I owned one.

"These garage-bred chauffeurs and the automobile school 'graduates' have done the business a lot of harm, and their willingness to work for a bare living places a premium on their grafting propensities, if they are possessed of any, and wittingly or unwittingly the automobile owner works his own injury when he employs them. Although their wages seem small they manage to eke them out by demanding their commissions.

"The trouble with the average owner is that he rarely, if ever, distinguishes between a chauffeur and a mere driver. A chauffeur knows his car, and every part of it. He has served his time in a factory or a shop and, therefore, is thoroughly competent to care for a car that is placed in his charge; and he has acquired, after thousands of miles of driving, that skill and clear-headedness which comes only with extended experience. Automobile owners ought to be willing to pay a decent wage

for such services, but, as I said, too many of them appear to think that ability to handle the steering wheel and levers is all that is necessary to constitute a skilled driver—a man who can be trusted with the lives of the members of their own families.

"Most of the owners who pay the smallest wages require the greatest service, and they are directly and indirectly responsible for a lot of the grafting with which the chauffeur is charged. I know one prominent physician in this city who last winter employed an automobile school graduate to drive his car for \$60 a month. It was the 'graduate's' first job and he imagined that the future would bring something better, but he soon discovered that driving the doctor's car was the smallest part of his work. For his \$60 he had to go to the house in the early morning and attend to the furnace, then act as butler at breakfast, tidy up the doctor's office and usher in his patients when they called. After lunch he drove the doctor on his rounds, and later took the physician's wife for a drive in the park or a tour of the shopping district. At dinner the 'chauffeur' again played the part of butler, and thereafter was free to devote himself to the care of the car, or whatever else he pleased. As a result, this doctor spent, in repairs alone, more money than if he had employed a competent chauffeur and a second man to attend to his household affairs.

"I know another chauffeur who is employed by a man in the suburbs and who receives \$100 a month for chauffeur and attending to the garden, while the chauffeur's wife serves as the madam's maid.

"Of course I do not blame owners for taking advantage of the situation, but it seems to me that more of them should distinguish between mere drivers and competent chauffeurs, and be willing to pay the price for competent service. There was a time, of course, when chauffeurs had an exaggerated idea of their value, and asked and obtained fancy salaries, but that was some years ago, when they tried to make themselves and the public believe that they were akin to locomotive engineers and should be treated and paid accordingly, and when some of them even thought that they were demeaning themselves and playing the part of a footman if they were expected to wear leggings and to open the car door for the women-folk. Those days have passed, however, and to-day good mechanics, who are careful and competent drivers, can be had for \$25 a week, and occasionally for less. When they are required to take care of more than one car, it is my belief that they are entitled to more money.

"I am not advocating high wages as a solution of all evils, but I do believe that a competent man is worthy of his hire and that it is up to automobile owners to distinguish such men from the horde of half-baked graduates and garage-bred drivers,

who are drivers and nothing more. When they make such distinctions they will discover that they will obtain more and better use from their cars, and at very much less expense, and when they investigate the characters and capabilities of chauffeurs who apply for work even half as carefully as they investigate applicants in other lines, the crooks and the grafters will be compelled to go elsewhere, and as a self-respecting man I will be as glad as anyone to see them go."

Another Chauffeur Expresses His Views. To the Editor of the Motor World:

After reading the article of the "night man" in last week's Motor World, I think that it becomes some one to take the part of the chauffeur, who, I believe, was set upon more than the "night man." I give the latter credit for a very good article, expressing some very good points, but on our part I would like to say that if our esteemed friend, the garage owner, would start at home and fix up some of the faults that the "night man" tells about, he would do a lot of good for himself, for the owners of the cars, for the chauffeurs and for his own help—more good, in fact, than he has done by talking about things of which he knows only one side, and which tend to lead narrow-minded people like himself to believe that all chauffeurs are alike, and nothing but a pack of crooks or thieves.

I am a chauffeur myself, and although I may not be able to write articles for publication as well as our friend, still I would like to state that if our friend would visit some of the good garages—those that do not harbor a "lot of thieves"—instead of forming opinions from his own garage, he would have a different opinion of us. For I know there are a lot of honest men in the business, although it is only too true that there are a good many who are not straight. Still, it is unjust to us to make us appear all alike, just as it would be foolish for us to believe that all garage owners are narrow-minded.

As to the "commissions": They are an injury to the chauffeur, and I think I voice the opinion of 75 per cent. of the men when I say this; for if there were more honest chauffeurs, owners could afford to pay better salaries; and if garage owners would pay their help better wages and no commissions to the chauffeurs, the owners would get better service. Instead of paying a bill that has been enlarged 20 per cent., in order to pay the chauffeur his 5 or 10 per cent. (as the case may be), the owner would pay only for the actual amount of supplies and repairs and would save from \$5 to \$20 per month. Besides, if he would get a good man and pay him a little better wages, he would get better service from the chauffeur, the garage and everyone connected with it, for the same or less money than he is now paying.

A Member of the Chauffeurs' Protective Association of New York.

COUPLING THAT ASSISTS MAGNETO

Bosch Devises New Form That Reduces Wear and Serves Other Purposes— How It Absorbs Shocks.

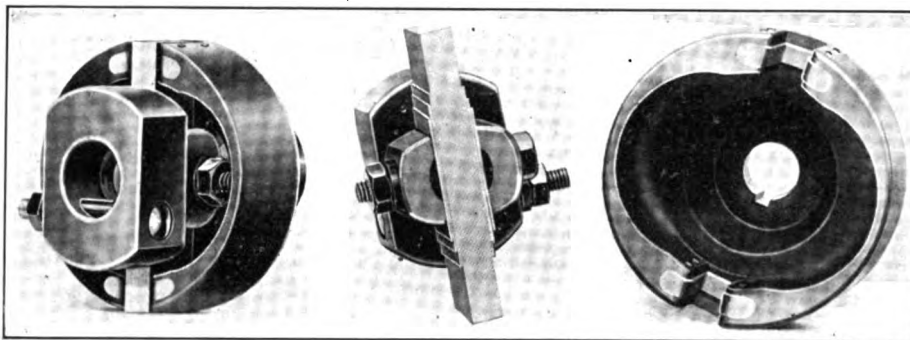
Only a small amount of power is required to drive a magneto, but the fact remains that the resistance of the armature is irregular, the turning action involving a "bump" corresponding to the peak of the current wave, or instant of maximum inductive effect. The result of this irregular resistance is that any lost motion in the driving gear is apt to be accentuated, with consequent wear of the parts. To obviate this difficulty, the Bosch Magneto Co., of New York City, just has brought out a new form of driving coupling which possesses all the elements of the usual flexible joint and at the same time is capable of ab-

commonly is employed for the purpose. Should the shafts be slightly out of line, or should the driving member be sprung so that the driving end of the coupling failed to run true, the driving action—which is to say the service of the magneto—would continue without interruption.

The arrangement is useful not only in reducing the wear of the connecting parts and in relieving the driving gear of stresses arising from disalignment of the shafts, such as is liable to occur through careless assemblage or as a result of accident, but it also serves in a measure to silence the action of the motor. It has come to be thoroughly understood that engine noise results from a multiplicity of small clatters, and the reduction of any such sounds is a step toward the quiet-running machine that is so much to be desired.

Britons Revise Nut and Bolt Standards.

After much deliberation the Engineering Standards Committee, which is composed



BOSCH NEW SPRING COUPLING FOR MAGNETO DRIVE

sorbing the unequal stresses in the drive. The shock absorbing property is derived from the use of a flat spring, which while transmitting the required amount of power, yields to the sudden load of the period of maximum electrical resistance just sufficiently to prevent a shock to the parts. The armature revolves much more smoothly in consequence, while the driving gear is correspondingly preserved from vibration and wear.

The new coupling is made in two parts, the accompanying illustration showing it in complete form and also with the two essentials withdrawn from engagement in order to indicate their relative purposes. One is cone-shaped, with a crowned end, while the other carries a cross bar which is of laminated spring steel construction. The crown piece is formed with opposed slots in its working end, which are fiber lined, and adapted to engage the ends of the spring. The latter not only permits a sufficient amount of temporary lag in the armature shaft to prevent the jolting of the mechanism, but also permits a slight amount of relative movement between the two shafts which it connects, thus serving the purpose of the ordinary universal joint, or the Oldham coupling, which more

of representatives of the leading technical institutions and societies associated with the automobile industry in Great Britain, has issued recommendations for new standards of nuts and bolts to be used in motor car construction. The specifications recommended are adapted from the B. S. F. standard—the British standard fine threads of common practice. In the 1/4-inch diameter the pitch has been changed from 25 to 26 threads per inch, while a new 9-32-inch size has been introduced having 26 threads per inch. For special sizes the use of the Whitworth thread is recommended with a uniform pitch of 16 threads per inch, irrespective of bolt diameter. The British standards for widths of nuts and bolts across the flats are retained, but are applied to a size larger than in common practice, the object being to save weight and space. Thus, the width across the flats of a 3/4-inch bolt head is that of the ordinary standard 11-16-inch bolt head. Though the nuts and bolts are considerably lighter than the ordinary British and Whitworth standards they take the same sized wrenches, with the exception of the 1/4-inch and the new 9-32-inch sizes, for the use of which a smaller wrench becomes a matter of necessity.

WHEN LEARNED JUDGES DISAGREE

(Continued from page 466.)

of rubber tires and rims covered by the Grant patent manufactured by either of the said companies and that they will be able to show that the rubber tires and rims dealt in and sold by these defendants were manufactured by the Kokomo Rubber Company and that, therefore, Seim and Reissig had a perfect right to use or sell them as they are protected by the decree in the Indiana circuit above referred to, not appealed from or reversed.

That the wheels and parts complained of and dealt in and sold by the defendants are covered by the Grant patent and infringe same cannot be questioned. The first question is, were these tires and rims made by the Kokomo Company? I have read the affidavits of William Seim, Gustave Reissig and Dorothy Seim, presented and read in opposition to the granting of this motion for a preliminary injunction and I fail to find evidence therein that either the rims or tires or wheels dealt in by the defendants here were made by the Kokomo Rubber Company or by the Goodyear Tire and Rubber Company or by the Victor Rubber Tire Company and hence fail to find evidence that these defendants are protected in using, dealing in or selling these parts or any of them, or the vehicle wheel complained of even if the decrees referred to protect those companies and all who purchase from them or either of them against the charge of infringement.

I do not need to decide that such decrees do or do not protect those companies and those who deal with them or purchase from them directly or from those who purchase of dealers to whom such companies sell, in passing on the question of a preliminary injunction.

The petition for intervention filed by the Diamond Rubber Company of New York, alleges, in substance, that it is engaged in purchasing, handling, using and selling rubber tires and rims decreed to be covered by the Grant patent in suit, and that such articles so covered by the Grant patent are manufactured and sold to the petitioner, Diamond Rubber Company, by the said Kokomo Rubber Company. The petition also alleges that the Kokomo Company has the right to manufacture, use and sell such tires under a judicial decree of the United States Circuit Court for the District of Indiana, seventh circuit, and that the right of the Diamond Rubber Company to handle, use and sell such tires and rims has been judicially found and assured to the petitioner by the decree of the circuit court and Circuit Court of Appeals, second circuit, affirmed by the Supreme Court of the United States. "To sustain this contention the petitioner presents a certified copy of the mandate of the Circuit Court of Appeals, second circuit, above referred to, as well as the decision of the Supreme Court of the United States in the same case. The petitioner further alleges that the defendants here, Seim and Reissig, are co-partners, doing business in the city of Albany, and that they purchase the infringing articles dealt in by them from the petitioner, Diamond Rubber Company of New York, and that same are made by the Kokomo Rubber Company of Indiana. The contention is that the defendants here, Seim and Reissig, having purchased these articles of the Diamond Rubber Company and the Diamond Rubber Company having purchased them of the Kokomo Rubber Company and a decree of the circuit court in Indiana having been entered adjudging the patent invalid the defendants are protected by said Indiana decree and have the right to deal in and sell these infringing articles. In short, it is contended that infringing articles covered by this patent made by the Kokomo Company may be sold anywhere and everywhere in the United States by parties or persons who obtain them directly or indirectly from the Kokomo Company.

James D. Hurd, the complainant here, holds an exclusive license under the patent in suit for making and selling these rims and tires and wheels in the State of New York. The Diamond Rubber Company desires to be made a party defendant so it

may come in in this suit and raise these questions and make this alleged defense in person.

I see no reason for allowing the intervention if, notwithstanding the decision of the Supreme Court of the United States above referred to, the Kokomo Company has the right to make and sell the alleged infringing articles anywhere in the United States or anywhere in the seventh circuit, and is protected in so doing by the decree of the circuit court before referred to, and purchasers of such articles from the Kokomo Company in the seventh circuit have the right to use and sell same anywhere in the United States and are protected by said decree in so doing, and purchasers of such articles in the second circuit are protected in using and selling them because made by and obtained from the Kokomo Company. The defendants here, Seim and Reissig, can set up that defense, show the facts and prove that the alleged infringing articles made and sold by them were made by the Kokomo Company, sold to the Diamond Rubber Company and by it sold to these defendants and the defense will be complete. The presence of the Diamond Rubber Company, an intermediary purchaser and seller, in this suit is entirely unnecessary. If it desires to defend this suit in behalf of these defendants it can furnish and pay counsel and furnish and pay witnesses, in short, bear all the expenses and take upon itself the burden of the defense. The Kokomo Company does not come into this court asking to intervene or seek to defend dealers in these infringing articles alleged to have been made by it.

The broad allegations of the petition for intervention must be deemed qualified by the certified copy of the decree filed herewith and which shows that the only right of the Diamond Rubber Company, if any, to make, use and sell these articles which infringe the Grant patent is derived from the decree of the United States Circuit Court in Indiana.

If that decree of the circuit court in the action referred to does protect the Kokomo Company against the charge of infringement in making and selling rubber tires, rims and other parts which in fact infringe the Grant patent I am of the opinion and hold that such decree does not protect users and sellers of those articles, made by the Kokomo Company in Indiana in the second circuit. If it shall be held that the decree of the circuit court in the district of Indiana not appealed from or reversed establishes in that circuit that the Grant patent is invalid notwithstanding the decision of the Supreme Court of the United States, still, that decree does not establish that as the law in the second circuit. The decision of the Supreme Court of the United States holding this patent valid must prevail in the second circuit. It must be the law here that the patent is valid. There is no judgment or decree anywhere that the Kokomo Company has a right as licensee to make and sell these articles under the Grant patent. The decision of the circuit court of Indiana is that the Grant patent is invalid,—that is, it has no existence. The decision of the Circuit Court of Appeals in the second circuit sustained by the Supreme Court of the United States is that the patent is valid.

The Circuit Court of Appeals in the second circuit did not adjudicate or determine that the Kokomo Company has the right to make and sell articles which would infringe the Grant patent but for the decision of the circuit court of Indiana. The Supreme Court of the United States has not so adjudicated. The Circuit Court of Appeals in the second circuit has not adjudicated or determined that purchasers and users of the articles referred to who obtain same from the Kokomo Company are protected in the use and sale of same in the second circuit. All the Circuit Court of Appeals in the second circuit adjudged or determined was that the injunction in Consolidated Rubber Tire Co. and Rubber Tire Wheel Co. v. Diamond Rubber Co. of New York, should exempt the defendant from its operation in handling, using and selling rubber tires and rims covered by the Grant patent, manufactured by the Kokomo Rubber Company.

The effect of the reservation made by the decree of the Circuit Court of Appeals in the second circuit is thus stated by the Supreme Court:

"The final contention of the Rubber Company is

that the Grant patent having been declared invalid by the Circuit Court of Appeals of the Sixth Circuit and by the Circuit Court for the District of Indiana in the Seventh Circuit, the Rubber Company should not have been enjoined from the handling or sale of tires manufactured in the Sixth and Seventh Circuits, and cites *Kessler v. Eldred*, 206 U. S. 285.

"The Court of Appeals practically reserved the question. It modified the decree of the Circuit Court so far as it prevented the handling, using or selling tires and rims authorized by any judicial decree, recognizing, as it said, the applicability of *Kessler v. Eldred*. But it further said:

"Whether it should be given a broader interpretation is a question upon which we express no opinion, deeming it more prudent to wait until the facts are fully developed.

"There is no occasion for attempting at this time to anticipate the future for a contingency which may not arise. * * * To provide in a decree that a defendant is not enjoined from making, using and selling devices which do not infringe or which have been licensed, seems unnecessary. The doctrine of *Eldred* and *Kessler*, if carried to the extent contended for by the defendant, will introduce radical and far-reaching limitations upon the rights of patentees. These questions may not arise in the case at bar, but if they should, the court should have the facts, and all the facts, before attempting to decide them."

"We concur in these remarks."

This is far from an adjudication that these defendants have the right to use, deal in or sell rubber tires and rims or vehicle wheels which in fact infringe the Grant patent, in the second circuit because made by the Kokomo Company in the seventh circuit.

If it is finally held, where a patent is litigated between the owner thereof and an infringer and the same is held invalid by the Circuit Court of a given circuit and the case is not appealed, and the same question is litigated in another circuit between the same complainant and a different defendant, alleged infringer, and the case goes to the Supreme Court of the United States and the patent is held valid, that the defendant in the first suit has the right to manufacture and sell articles plainly and indisputably covered by the patent all over the United States and that purchasers from such defendant everywhere in the United States are also protected in so using and selling such articles, the patent will afford little if any protection to the owner. The monopoly of the patent will be shared by the defendant in the suit referred to and he will have the same right to make and sell possessed by the owner of the patent and all purchasers and users under him will be protected. I am not prepared to assent to any such result. Articles which in fact infringe this patent, if sold or used outside the circuits where the patent has been held invalid, must be held to infringe and those who sell or use outside the circuits referred to must be held to be infringers even if the articles so sold or used were made and put on the market by a person or corporation as to whom the patent was so held invalid.

The decision of the circuit court in the district of Indiana may be the law there as to the Kokomo Company and those who deal with it there, but it is not the law of the second circuit or in any way binding on the courts in the second circuit. While articles made by the Kokomo Company and sold in the second circuit were excepted from the operation of the injunction in the case referred to it was not decided that the users and sellers here had any right to use and sell. As said by the Supreme Court the Circuit Court of Appeals of the second district reserved the question. The question is now before me in this motion to intervene and is a practical one. There is no rule of comity which requires the Circuit Court of the United States in one circuit and state to recognize the decree of a circuit court of the United States in another state and circuit in such a case as this, especially when the Supreme Court of the United States has decreed differently as to the same subject matter, viz., the validity of a patent. Neither the Kokomo Company nor the Diamond Rubber Company of New York is a licensee. The adjudication in Indiana has no force in New York. Sup-

pose the decree of the circuit court in Indiana is to be given the effect of holding that the Kokomo Company had a right to make and sell the wheels or the parts complained of its effect may be confined to Indiana and if the circuit court of New York holds differently between other parties as it must in view of the decision of the Supreme Court, then all persons residing and acting in New York other than the Kokomo Company are subject to the decree made by the circuit court in New York. Sued in Indiana circuit court the Kokomo Company and possibly those purchasing from it would be protected, but sued in New York, second circuit, purchasers from the Kokomo Company would not be. The territorial jurisdiction of the two courts is separate and distinct.

In *Kessler v. Eldred*, 206 U. S. 285, Kessler was the maker and seller of electric cigar lighters and had customers therefor throughout the United States. Eldred was a competitor of Kessler in the business of making and selling cigar lighters. Eldred owned a patent for an electric lamp lighter, known as the Chambers patent. Eldred brought suit against Kessler in the district of Indiana for infringement of the Chambers patent in making and selling his cigar lighters. The circuit court found that there was no infringement of the Chambers patent and its decision was affirmed by the Circuit Court of Appeals. There was no holding that the Chambers patent was invalid. Later Eldred brought suit in the western district of New York against one Breitweiser who was a user of the cigar lighters made by Kessler. Kessler assumed the defense of that suit. After the commencement of this last suit many of Kessler's customers refused to send in further orders and refused to pay for lighters already purchased, being intimidated by the suit against Breitweiser. Thereupon Kessler brought suit in equity, northern district of Illinois, to enjoin Eldred from commencing further suits for infringement of the Chambers patent against Kessler's customers who used the precise structure made and sold by Kessler and which had been held as between Eldred and Kessler not to infringe the Chambers patent on the ground such suits injured Kessler's business and would result in a multiplicity of actions. The circuit court dismissed the bill but on appeal to the Circuit Court of Appeals, seventh circuit, that court certified to the Supreme Court the questions: 1, did the decree of non-infringement in the suit of Eldred v. Kessler, district of Indiana, have the effect to entitle Kessler to continue to manufacture and sell the lighter complained of in that suit throughout the United States? and 2, did the decree mentioned have the effect of making suits by Eldred against Kessler's customers for alleged infringement by them of the Chambers patent in using and selling the lighter made by Kessler, a wrongful interference by Eldred with Kessler's business?

The Supreme court answered both of these questions in the affirmative. Mr. Justice Moody, in giving the opinion of the court, said, "We need not stop to consider whether the judgment in the case of Eldred v. Kessler had any other effect than to fix unalterably the rights and duties of the immediate parties to it, for the reason that only the rights and duties of those parties are necessarily in question here. It may be that the judgment in *Kessler v. Eldred* will not afford Breitweiser, a customer of Kessler, a defense to Eldred's suit against him. Upon that question we express no opinion. Neither it nor the case in which it is raised are before us. But the question here is whether by bringing a suit against one of Kessler's customers Eldred has violated the right of Kessler. * * * Leaving entirely out of view any rights which Kessler's customers have or may have, it is Kessler's right that those customers should, in respect of the articles before the court in the previous judgment, be let alone by Eldred, and it is Eldred's duty to let them alone. The judgment in the previous case fails of the full effect which the law attaches to it if this is not so." In the statement of the case the court says, "Eldred was a competitor of Kessler's and manufactured a similar form of lighter (entirely dissimilar from that described in the Chambers patent.)" It was evident to the court that Eldred's line of conduct was intended and calculated to injure and impair the trade of Kessler by driving away his

customers. The validity of the Chambers patent owned by Eldred and which he claimed Kessler infringed was not (so far as appears) in question. In any event the decree did not go against Eldred and in favor of Kessler upon any theory that the Chambers patent was invalid, but simply on the proposition that Kessler's lighter, "like Eldred's" but "entirely dissimilar from that described in the Chambers patent," did not infringe the structure covered by the Chambers patent.

It well may be that in such a suit really to enjoin an unlawful interference with a man's business by means of vexatious suits against his customers as between the parties to the prior suit the court has power to intervene and restrain the alleged wrongdoer, one of the parties to that action, at the suit of the other from bringing and prosecuting other actions involving the same precise facts and questions even though brought against other defendants and apply the rule or doctrine of comity thus giving full force and effect to the judgment of the circuit court rendered in one district in other or even all districts in the United States.

There is a wide distinction between a holding that a patent is invalid and a holding that a certain manufactured article does not infringe such patent. In *Kessler v. Eldred*, the question was not submitted and the Supreme Court did not decide that a judgment in the circuit court of one district and circuit holding a patent invalid is binding and conclusive of that fact in all other circuits even as between parties to the suit. Nor did it decide, as we have seen, that such a decree protects purchasers from the defendant in such a suit, who has successfully denied the validity of the patent, who are using and selling the alleged infringing article (made by the defendant in such suit) in other circuits against the charge of infringement made in the circuit where the alleged infringing acts are done.

If that is held it must follow that the decree of a circuit court of the United States in one circuit, as between the parties to the suit and their privies and all persons who take property from the one or the other of the parties, adjudicated upon or in relation to in such suit, is final, binding and conclusive in all other circuits as to like property thereafter made. There was no direct judgment that Kessler had the right to make the lighters in question. It was not adjudicated between Kessler and Eldred that Eldred had no valid patent. It was adjudicated that a certain structure made by Kessler did not infringe—was not covered by—Eldred's (the Chambers) patent. That adjudication was affirmed by the Circuit Court of Appeals in the seventh circuit. (*Eldred v. Kessler*, 106 Fed. R. 509.) That became the law of the case in that circuit as to that particular subject matter between these parties and their privies. The equity action was brought in the circuit court of the northern district of Illinois, also in the seventh circuit. It well may be and is probable that the opinion of the court in *Kessler v. Eldred*, supra, was given with this fact in mind. Eldred was a citizen of the northern district of Illinois and Kessler of the district of Indiana.

In the case at bar the rubber tires and rims in question here were not in existence when the case in Indiana was decided and the decree rendered which is alleged to protect the defendants here. They could not have been a subject of controversy in that suit. The validity of the Grant patent was in issue. It was adjudicated that it had no legal existence. Having no existence as to the seventh circuit, district of Indiana, the making and sale of rubber tires and rims by the Kokomo Company was not unlawful so far as the holder of that patent was concerned. I am of the opinion that this decree conferred and confers no right on the Kokomo Company to perpetually and forever infringe the Grant patent now that it has been held valid by the Supreme Court of the United States whose decision must be the supreme law of the land. Clearly, to my mind, it confers no right on the Diamond Rubber Company of New York, the petitioner for intervention here, to purchase and sell rubber tires or rims or rubber-tired wheels made by the Kokomo Company which in fact infringe the Grant patent, for as to it the Supreme Court of the United States has decided, in a case where it was sued for infringing that patent and

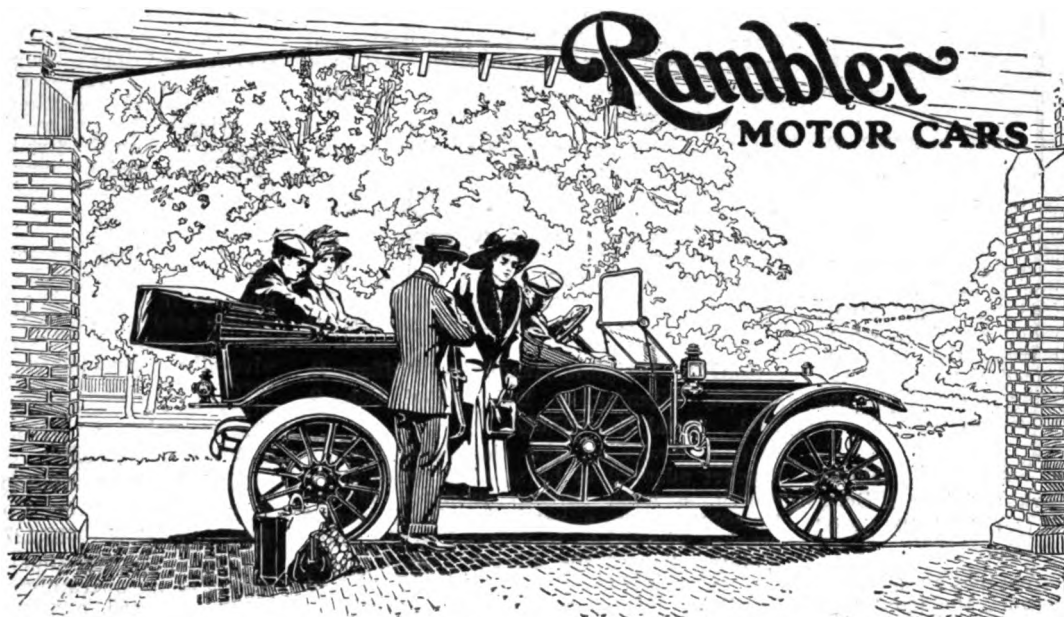
where its validity was directly in issue, that the patent is valid and that the Diamond Rubber Company has no right to make or sell articles covered by it. The exception in the decree of the Circuit Court of Appeals, second circuit, went to the terms and extent of the injunction to issue under it, and the effect of its decree as a whole was to reserve the question here in issue. This is held by the Supreme Court as before stated. In short, unless the decree in the circuit court of Indiana, referred to, is a protection to the Kokomo Company and all who purchase and sell tires and rims of its make wherever located and dealing in them, the Diamond Rubber Company of New York and these defendants, Seim and Reissig, are infringers when they purchase and sell and use the articles mentioned in the State of New York, especially those made or purchased and sold here since the decree of the Circuit Court of Appeals, second circuit, and its affirmation by the Supreme Court.

To hold otherwise is to fail to give full force and effect to the decision of the Supreme Court of the United States. To hold that the Diamond Rubber Company of New York, as to which company the Grant patent has been held valid in a suit wherein that company was defendant by the Supreme Court of the United States, is at liberty to purchase and sell these tires and rims throughout the United States is to say that the patent is invalid as to that company by reason of the decree of the circuit court in the district of Indiana, a subordinate court, as to all articles made and sold by the Kokomo Company in whose hands soever they go and to my mind is extending the doctrine of *Kessler v. Eldred*, supra, far beyond its legitimate scope, and the intent of the court which pronounced the judgment in that case. I do not think that either the Diamond Rubber Company of New York or these defendants is in privity with the Kokomo Company. True they purchase rubber tires and rims from the company directly or indirectly, but such tires and rims were not the subject of that action or involved in it as they were not then in existence. They were not parties to that suit in Indiana or represented by any one who was a party. They had no interest in it. The term "privity" denotes mutual or successive relationship to the same rights of property. *Litchfield v. Goodnow* (and cases cited) 123 U. S. 549, 551. It does not satisfactorily appear here that the alleged infringing wheels, or parts thereof, handled and sold by these defendants were made or sold by the Kokomo Company at any time, or prior to the decision by the Supreme Court. In fact there is stamped on the tire itself as maker thereof the name of another company. I do not think the intervention should be permitted for this additional reason, viz.—it is not made to appear that the tires and rims and wheels used and sold by these defendants were made by the Kokomo Company and there is substantial evidence that they were not made by that company. There is no suggestion that they were made by either of the other companies as to which this patent has been held invalid.

For these reasons the petition for leave to intervene is denied and the motion for a preliminary injunction is granted.

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990,745. Automobile Tire Trunk. Isidore Sidney Kallis, New York, and Joseph Berg, Brooklyn, N. Y. Filed Oct. 1, 1910. Serial No. 584,948.

1. In combination, a trunk, a frame on the underside of the trunk, said frame comprising spaced apart side bars, said bars being bowed at their middle portion to form a space between said middle portion and the bottom of the trunk, the ends of the bowed bars being secured to the trunk, two spaced apart strips extending across the spaced apart bowed bars, said strips having upwardly extended members which engage the side of the trunk, the strips being secured to the spaced apart bars, the extended members being secured to the side of the trunk, and cushions on the bottom of the strips.

990,746. Automobile Tire Trunk. Isidore Sidney Kallis, New York, and Joseph Berg, Brooklyn, N. Y. Filed Oct. 12, 1910. Serial No. 586,662.

1. In a trunk, the combination of front and rear and side portions, the front portion comprising two end sections and a lower central section secured to the inside of the end sections, said lower central section being in a different plane than the end sections and terminating some distance below the top edge of the trunk to form an opening, a frame formed on its inner edges with a guideway and on its outer edges with a flange, the edges of the frame fitting snugly the inner edges of the end sections and the flange overlapping the said end sections and extending to the bottom of the latter, extensions formed on the bottom of the frame, the frame resting against the lower central section, and the extensions engaging the sides of the trunk and secured thereto, and a door operating in the guideway to cover the opening.

990,784. Bulb Protector. Max G. Schlottborn, Pittsburg, Pa. Filed Nov. 10, 1910. Serial No. 591,662.

1. A protector of the type described comprising sections having the upper ends thereof pivotally connected together, semi-cylindrical members carried by the lower ends of said sections, a collar mounted upon said members to retain said sections together, and said collar and members provided with means for detachably securing the collar upon the members.

990,798. Gear Casing for Driving and Steering Wheels. Jacob Berends, Englewood, Kans. Original application filed Apr. 21, 1910, Serial No. 556,742. Divided and this application filed Aug. 10, 1910. Serial No. 576,534.

The combination with a driving shaft, a wheel spindle, gears carried by said shaft and spindle, and a gear connecting said first named gears, of outer housings secured outside the first named gears, having lower portions provided with flanges and upper portions provided with curved and overlapping sides and inner upstanding flanges above the connecting gear, a flanged cap overlapping said upstanding flanges, inner housings upon the inner sides of the gears, having lower flanges secured to the lower flanges of the outer

housings, and provided with contiguous upper ends below the connecting gear, and a flanged cap secured to overlap said upper ends of said inner housings.

990,811. Distributor for Magnetos. Franklin B. Hays and John M. Dinkins, Indianapolis, Ind., assignors of fifty-three one-hundredths to William L. Taylor, Indianapolis, Ind. Original application filed Nov. 4, 1909, Serial No. 526,271. Divided and this application filed Aug. 9, 1910. Serial No. 576,410.

1. The combination, with an electric current producing apparatus, of a distributor comprising a plurality of insulated annularly arranged segment-conductors, a traveling conductor adapted to sweep all of said segments at each circuit of its travel, a driving shaft, and means between the driving shaft and traveling conductor for varying the relative travel of said shaft and conductor.

992,142. Dirigible Headlight. William B. Austin, Wilmington, Del. Filed Feb. 9, 1911. Serial No. 607,637.

In a device of the class described, a bracket adapted to be secured to an automobile, a lamp support mounted therein to rotate upon a vertical axis, a second bracket adapted to be secured to the automobile adjacent the driver's seat, a quadrant on said bracket comprising a pair of parallel members, a lever pivotally mounted on said bracket and projecting upwardly between said members, a lug on one side of said lever, one member of said quadrant being notched at substantially the center to receive said lug, a spring on the opposite side of said lever constantly engaging the other member of said quadrant, and a rod connecting said lever and said lamp support, substantially as described.

992,177. Rubber Tire. Phillip Ernerwein, New York, N. Y. Filed May 1, 1909. Serial No. 493,433.

The combination with a channel rim, of a series of elastic blocks each having a base flange projecting beyond both its ends and its sides, a pair of longitudinal side pieces for every block overlying the sides of the base and of the same length as the base, and transverse fastening bars of a width to engage the ends of two adjacent base flanges and of a length to cross the abutting ends of two pairs of side pieces, the ends of the side pieces and transverse bars being rabbeted to make a flush joint and prevent the longitudinal side pieces from creeping.

992,183. Vehicle. James Morris Foy, Palatka, Fla. Filed Jan. 12, 1910. Serial No. 537,608.

1. A vehicle, comprising a frame, wheels for supporting said frame, a prime mover carried by said frame, means for operatively connecting said prime mover and certain of said wheels, to propel the vehicle in a plurality of directions, and an auxiliary propelling device independent of said wheels, and operatively connected with said prime mover, said frame having means whereby it can be raised and lowered to render said auxiliary propelling device inoperative and operative.

992,259. Horn and Other Article Constructed from Flexible Tubing. Ernest Rubes, Brooklyn, N. Y., assignor of one-half to Louis Rubes, Brooklyn, N. Y. Filed June 15, 1908. Serial No. 438,621.

1. A wind instrument, the body of which is composed of a flexible metal tube.

992,298. Combination Convertible Vehicle Body. Willard I. Twombly, New York, N. Y., assignor, by mesne assignments, to Twombly Motors Company, New York, N. Y., a Corporation of New York. Filed March 4, 1910. Serial No. 547,207.

1. In a vehicle body, the combination with a body provided with an integral back and sides with window receiving pockets therein, and doors having a collapsible window-carrying frame, of a two-part roof, one fixed and the other part consisting of a series of hinged sections foldable upon itself and over the fixed roof; foldable roof supporting and window carrying pillars at the sides and back to fold over the top of the sides and back of the body to form a continuous and finished rail for the top of the body; drop windows carried by said pillars which may be dropped into the pockets in the back and sides; hinges to secure said pillars to the body, the hinges for the rear pillars comprising a pair of pivotally connected members, one in the form of a leaf secured to the body, the other member consisting of a sleeve portion in which the bottom of the pillar engages and is secured.

992,321. Transmission Gearing. Henry Roy Wise, Denver, Colo. Filed Apr. 5, 1909. Serial No. 488,127.

1. In a transmission gearing the combination of an operating shaft and a member to be operated, a number of annular gears surrounding the shaft and having their axes coincident therewith, a train of gears interposed between the shaft and each annular gear, one gear of each train being fast on the shaft, and another gear of each train being in mesh with its corresponding annular gear, the shafts of the interposed gears of one train being connected in operative relation with one side of the member to be operated, while the shafts of the interposed gears of the other trains are connected in operative relation with the other side of the member to be operated, and suitable means for locking any annular gear against movement during the operation of the shaft, whereby a speed is transmitted from the shaft to the member to be operated corresponding to that developed by the train of gears, substantially as described.

992,370. Liquid Measure Indicator. Iver C. Mastrup, San Rafael, Cal. Filed June 21, 1910. Serial No. 568,206.

1. An indicating device of the class described comprising the combination with a tank; of a base plate carried by the bottom of the tank, a worm shaft extended vertically through the top of the tank, said shaft being revolubly mounted upon said plate, a bearing bracket, having an apertured portion, resting upon the top of the tank, rods secured to the base plate and extended vertically at spaced distances upon diametrically opposite sides of the worm shaft, the upper ends of said rods being threaded and disposed through the top of the tank and the bearing bracket, securing nuts disposed on said rods beneath the top of the tank and upon the bearing bracket, an indicator having means operatively connected with said worm shaft and a float having a central screw threaded portion engaged with said worm shaft and slidably mounted upon said rods to rotate the shaft and operate the indicator.

992,457. Shock Absorber. Milton Tibbetts, Detroit, Mich., assignor, by mesne assignments, to Packard Motor Car Company, Detroit, Mich., a Corporation of

Michigan. Filed Nov. 19, 1908. Serial No. 463,368.

1. A shock absorber comprising two members pivoted together and adapted to move in parallel planes, a concentric arc-shaped arm extending from the edge of one of said members and having one of its faces concaved or wedge shaped tapering from the ends of the arc toward its middle, a plate on the other member between which and said other member said arm is adapted to oscillate, and springs tending to press said plate toward said member.

992,472. Motor Vehicle. Henry S. Baldwin, Hartford, Conn., assignor, by mesne assignments, to The Columbia Motor Car Company, Hartford, Conn., a Corporation of Connecticut. Filed June 22, 1899, Serial No. 721,504. Renewed Jan. 27, 1911. Serial No. 605,073.

1. In a motor vehicle, the combination with the driving wheels, driven gears and frame of the driving truck, of a casing inclosing and supporting the driving mechanism and the driving pinions in mesh with said driven gears, said casing being provided near its ends with transverse sockets affording a relatively long bearing surface, and arms entering said sockets and secured to said frame, substantially as shown and described.

992,482. Explosion Engine. Howard E. Coffin, Detroit, Mich., assignor to Chalmers-Detroit Motor Company, Detroit, Mich., a Corporation of Michigan. Filed March 1, 1909. Serial No. 480,777.

In an explosion engine, the combination with a piston, of a cylinder forming the explosion chamber, said cylinder being pro-

vided with a port and having a recess in one side thereof above the highest point of travel of the piston, an electric igniter positioned within said recess, and a cylindrical sleeve between said piston and cylinder forming a valve for controlling said port and being provided with an extension serving as a shield for covering said recess subsequent to said explosion.

992,661. Self-Propelled Vehicle. Camille Jean Hautier, Boulogne, France. Filed Oct. 25, 1909. Serial No. 524,456.

1. In a self propelled vehicle, the combination of a motor mechanism composed of an engine, a compressor and a compressed air motor, an epicycle train of gears, an externally toothed crown wheel to the said train, a toothed wheel mounted on the compressor shaft and in gear with the said externally toothed crown wheel, a propeller shaft, and means carried by the said shaft for carrying the intermediate wheels of the said epicyclic train.

992,677. Push-Rod for Delivery Valves of Internal Combustion Engines. Paul Kron, Lavallois-Perret, France. Filed Dec. 1-4, 1908. Serial No. 467,499.

1. A valve actuating rod comprising an upper and a lower member, and a casing in which the said members extend, the lower member fitting at its lower end in the lower part of said casing and having a reduced upper portion provided with a central socket, the upper member fitting at its upper end in said casing and having a reduced lower portion corresponding with the reduced portion of the lower member, the adjacent ends of said reduced portions forming co-operating contact surfaces, a central rod extending from the reduced portion of the upper member and engaging

the socket in the lower member, the reduced portions of said members forming with the casing a chamber surrounding the contact surfaces and containing oil, the oil filling the space between the contact surfaces of the members, when said contact surfaces are separated.

992,718. Transmission Gearing. Frank H. Jones, Muncie, Ind., assignor to Warner Gear Company, Muncie, Ind., a Corporation of Indiana. Filed Feb. 3, 1910. Serial No. 541,782.

1. A transmission gearing comprising a main containing casing, a pair of aligned shafts journaled therein, gears slidably mounted on one of said shafts within the casing, a gear carried by the other of said shafts within the casing, a countershaft journaled in the casing, a gear carried by said countershaft between the ends thereof and meshing with the last mentioned gear, other gears carried by the countershaft in position to receive the said sliding gears, the said casing having, at that end of the countershaft opposite the first-mentioned counter-shaft-gear, a pocket of greater diameter than the diameter of the nearest countershaft-gear, and having a depth exceeding the projection of the countershaft beyond the first-mentioned countershaft-gear, and said casing also having a bearing-receiving opening in the bottom of said pocket exceeding the diameter of the adjacent end of the countershaft, a bearing removably mounted in said opening and supporting the adjacent end of the countershaft, and means by which the shiftable gears may be shifted.

992,740. Detachable Link Chain. Arthur B. Taylor, Detroit, Mich., assignor of one-

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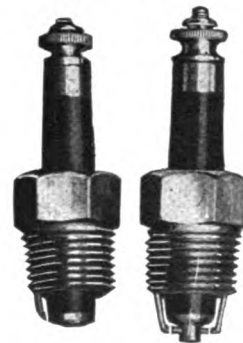
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half to William P. Culver, Detroit, Mich. Filed Oct. 28, 1910. Serial No. 589,630.

1. A chain comprising a multiplicity of links each comprising a pair of rigidly connected side bars, and a plurality of connecting links each consisting of a side bar, a pair of rigidly connected cross pins journaled in the adjacent ends of two of the first mentioned links and a removable side bar, the pins of each connecting link extending through and beyond the main links and the projected ends each having a transverse hole formed therethrough beyond the outer face of the removable link and a transverse notch formed in the circumference of the projected end across the transverse opening and offset relative thereto inwardly beneath the outer face of the removable link.

992,864. Cranking Device for Gas Engines. Charles R. Engel, Oaklyn, N. J. Filed Sept. 14, 1910. Serial No. 582,100.

1. In a cranking device for explosion engines, the combination with an outer clutch member secured to the engine shaft, of a sleeve journaled in fixed bearings, a crankshaft longitudinally movable through the sleeve, an expansible clutch member carried by the sleeve, means operated by

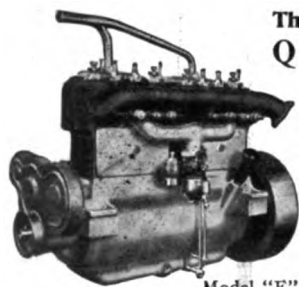
the longitudinal movement of the crank shaft for expanding and contracting the expansible member of the clutch.

992,879. Attachment for Vehicle Wheels. Howard L. Keiper and Frank W. Carlton, Easton, Pa. Filed Apr. 1, 1909. Serial No. 487,194.

A resilient wheel comprising a hub and an outer rim supported on the hub, an annular ring fitted on said inner rim and removable therefrom, a series of lugs on said ring, a cup pivoted to each lug, a cone extending from the base of each cup, a soil spring resting in said cup and centered upon said cone, a cap telescoping within said cup and over said coil spring, said cup having a compartment in its outer end, a coil spring arranged in said compartment, a cap pivoted to the outer rim and telescoping over the outer end of each cap and forming an abutment for the outermost coil spring, and a cone extending inwardly from said cap for centering said spring in said compartment.

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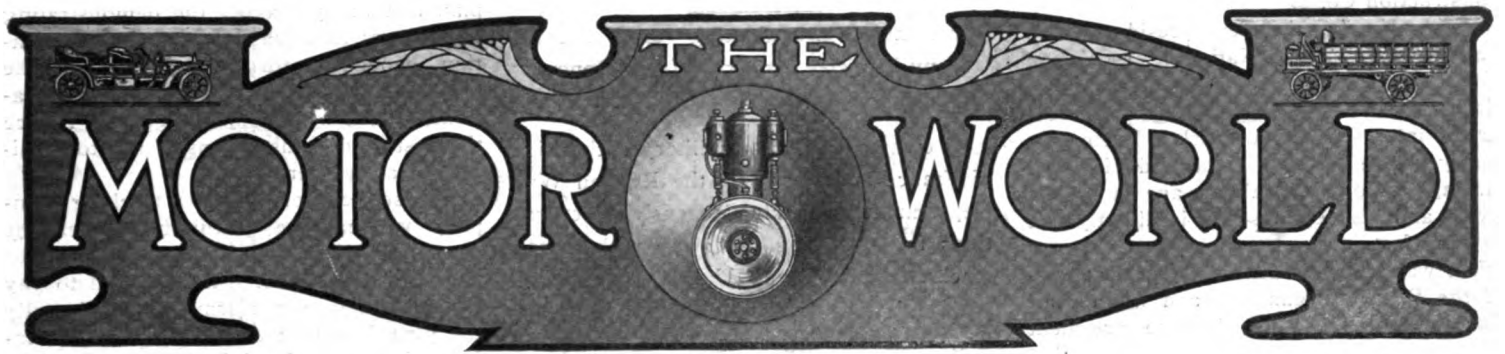
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FAL FINALLY FORCED TO THE WALL

Two Reorganizations and Changes of Presidents Fail to Save Chicago Company—Liabilities Reach \$150,000.

After long wriggling to avert it, the Fal Motor Co., of Chicago, was on Saturday last, 12th inst., petitioned into bankruptcy and now is in the hands of a receiver, Edwin C. Day having been designated by the court to serve in that capacity. The liabilities of the company are placed at \$150,000 and the assets at one-half of that sum. The petitioning creditors allege that the business and assets of the company were being "neglected and dissipated" and that there were valuable uncompleted contracts which if properly cared for would result in large profits to the company.

At least twice during the last two years, the Fal Motor Co. was on the verge of failure. On the first occasion its resources were practically exhausted and were recouped by the sale of stock in \$10 shares offered by a very florid circular which was circulated largely among farmers and which, it is said, brought in between \$60,000 and \$80,000. This money went the way of the other.

At that time, N. H. Van Sicklen, one of the veterans of the trade who is widely known in Chicago, was chosen president of the company and good use was made of his name and fame in the stock selling operations. When Van Sicklen had enough and cried quits, another reorganization was effected and E. H. Marhoefer, who was described as a banker and who also is interested in an automobile agency in Chicago, was chosen president. Marhoefer, however, failed to stem the tide and when some three weeks since E. H. Lowe, who organized the company and who since its formation six years ago had served as its secretary and general manager, resigned these offices and retired, there were those who grasped that the inevitable could not

be much longer postponed, and that the company would have to liquidate.

Consolidated "Collecting" on Grant Patent.

As a result of the decree of the United States Supreme Court in favor of the patent No. 554,675, covering the Grant solid tire, its owner, the Consolidated Rubber Tire Co., has begun the "collection" of judgments in a large number of suits for infringement which have been pending in various United States circuit courts for several years. A case of the sort against the Pennsylvania Rubber Co. of New York was decided this week in favor of the Consolidated company by Judge Holt of the United States Circuit Court for the Southern District of New York, who ruled that the defendants had infringed the patent and granted an injunction and an order for an accounting.

Pardington Goes Into Oil and Grease.

A. R. Pardington, former general manager of the Long Island Motor Speedway, who played such conspicuous parts in the promotion of the Vanderbilt cup races and other affairs of real moment, finally has gone into the trade. He is one of the organizers of the Consolidated Lubricants Co., of New York, which was this week incorporated with \$25,000, for the purpose of manufacturing and dealing in lubricating oils and greases. J. N. Patch, also of Brooklyn, and W. L. Sawyer, of South Nyack, N. Y., are the other corporators of the company.

Schacht Figures in Canadian Company.

In conjunction with several residents of Toronto, the principals of the Schacht Motor Car Co., of Cincinnati, Ohio, have formed a Canadian company and purchased a former typewriter factory in Hamilton, Ont, where Schacht cars and commercial vehicles will be reproduced. The officers of the company are: President, Thomas P. Rolph, Toronto; vice-president, T. H. Schacht, Cincinnati; treasurer, Gerard Muntz, Toronto; secretary and sales manager, J. S. Innes, Toronto.

MORGAN TRUCK IS REORGANIZED

New Corporation Headed by Unwin, Relieves Embarrassment and Resumes Work—Page's Option on Property.

By releasing several attachments and raising the sum of \$75,000, which has been secured by an issue of special preferred stock, the stockholders of the R. L. Morgan Co., Worcester, Mass., pioneer truck builders, last week saved that old company from going on the rocks and effected a reorganization under the style of the Morgan Motor Truck Co., of which Harry Unwin, of New York, one of the real veterans of the industry was elected president and general manager. The other officers are as follows: Eben F. Jones, treasurer, and Jerome R. George, Eben F. Jones, Harry Unwin, John E. Bradley and Lancaster P. Clark, Waterbury, Conn., directors. Charles H. Derby was elected clerk.

The indebtedness of \$57,000, which encumbered the R. L. Morgan Co., was taken care of by an agreement to pay 20 per cent. cash, and the giving of notes for 20 per cent., payable in two years, and for 60 per cent., payable in three years, bearing 4 per cent. interest.

The capital stock now issued totals \$719,800, of which \$144,800 is preferred, \$75,000 special preferred and \$500,000 common. The stockholders authorized the issue of \$100,000 special preferred stock, but \$25,000 was not issued. The total capital stock authorized for the company has been fixed at \$1,100,000.

Ralph L. Morgan, who formed the original company when motor trucks were curiosities and who was its treasurer and later its manager, was selected as the consulting engineer of the new organization. Of the directors of the reorganized corporation Mr. Clark is a representative of the creditors; Mr. Jones is general manager of the Morgan Spring Co.; Mr. Bradley is president of the Osgood-Bradley Car Co.; and

Mr. George is an engineer for the Morgan Construction Co.

Harry Unwin, the new president once was secretary of the National Association of Automobile Manufacturers and later was identified with the Oldsmobile and Pierce-Arrow interests in New York. During recent years he has been associated with Carl H. Page & Co., the Chalmers agents in New York, and his new position is directly due to that fact. About a year ago when an effort was being made to readjust the affairs of the R. L. Morgan Co., and when Clair Forter, of New York, became president of the company, it was current report that Carl H. Page was seeking to purchase the Morgan property. The report was circumstantially denied, but later it was announced that Page & Co. had secured the sales agency for the Morgan output. After last week's reorganization meeting, however, it came out that Page really had obtained an option on the property conditional upon his financing the company until 1912. It was stated that the option lapsed because of Page's failure to adhere to the conditions and that a few months since, while he was still advancing money, he sent Unwin to Worcester to conduct its affairs and look after his interests. While there Unwin became acquainted with the directors and stockholders and made such a favorable impression that when reorganization was effected he was selected to head the new company.

Weed Reaps Harvest of Injunctions.

Following the decision of the United States Circuit Court of Appeals for the Seventh District in favor of the Parsons patent, No. 723,299, which covers the Weed Chain Tire Grip, which decision was rendered in the suit against the Excelsior Supply Co. and the Pitts Anti-Skid Co. of Chicago, the Weed Chain Tire Grip Co. has proceeded aggressively all along the line. In the three weeks that have elapsed since the judgment was rendered, injunction orders have been obtained against The Garage Equipment Co., making the Superior grip; the Milwaukee Auto Specialty Co., makers of the Radium grip; the H. Channon Co., makers of parts for grips; Chicago Chain & Mfg. Co., makers of the Chicago grip; Leo Rabin, maker of the Reliable grip; U. T. Hungerford Brass Co. and Pearsall-Traver Co., manufacturers of the Reliance grip; William Wooster, selling the Victor grip; J. Stewart Smith, selling the Morgan and Whittaker grips; The 35 % Automobile Supply Co. and A. B. Norwalk, selling the Cleveland, Wearwell and other grips. Three other manufacturers of grips have consented to injunction orders which are before the court for signature. They are the Enterprise Chain Co., makers of the Morgan grip; Cleveland Chain & Mfg. Co., makers of the Wearwell and Economy grips; Newall Chain, Forge & Iron Co., manufacturers of the Presto and Ever-Ready grips.

RUSSIA MAY PURCHASE 2000 TRUCKS

Government Investigating and Testing Many Vehicles for Army Use—Opportunity for American Makers.

In common with the military authorities of France and Germany, the Russian War Department is making extensive preparations for equipping the army with motor trucks. According to United States Consul Jacob E. Conner, of St. Petersburg, a large area is being cleared in that city on which repair shops are being erected, while garages are to be installed in various parts of the Empire. It has been learned from official sources that the purchase of 2,000 trucks of capacities ranging from 1½ to 3 tons is contemplated. Arrangements have been made for funds to cover initial expenses, so that cash payments will be made for trucks purchased for trial purposes. About 25 European machines have been obtained thus far under the arrangement in question, but no American products.

The consul states that American trucks sent to St. Petersburg would be practically certain to be purchased for experimental purposes and suggests that manufacturers should lose no time in placing a machine at the disposal of the government. On application to the Bureau of Manufactures, Department of Commerce and Labor, at Washington, with reference to File No. 7,143, applicants will be supplied with the name of a party who guarantees that any American car intrusted to him will be submitted for trial. A series of tests began last June, but the authorities have consented to give a trial to any American car entered properly. The majority of cars are to be used for hauling bulky army supplies such as provender and camp equipment.

Sampson Forms a Trucking Company.

As a solution of the much-vexed commercial vehicle demonstration problem, the metropolitan branch of the Alden Sampson Mfg. Co.—which is a part of the United States Motor Co.—has evolved the plan of employing a separate organization to handle all the operating work that usually is carried on directly by a sales organization.

With this object the Sampson Motor Trucking Co. has been formed, which is, strictly speaking, a company within a company, in the sense that it is not to have a corporate existence and that it will not seek business nor attempt to find a market for its services. Its purpose will be to take care of whatever demonstrations may be required by prospective purchasers, subject to the direction of the parent selling company, to provide substitute vehicles for Sampson truck owners whose equipment may be temporarily disabled and also to assist customers by furnishing extra trucks

for emergency duty. The keynote of the plan is that by making the demonstrating department in a sense a separate organization, dependent for its existence on the successful performance of trucking operations, it will be possible largely to reduce the cost of demonstrations, if not to eliminate it altogether.

The services of the new trucking company will not be gratuitous; either the party for whom service is performed or the sales department will be forced to pay for all haulage performed. Incidentally the plan is expected to furnish useful information as to local haulage costs. The new company commenced operations this week with an equipment of six trucks.

Advises a Receiver for Maytag-Mason.

William Galloway, of Waterloo, Iowa, who was reported to be one of the largest indorsers of the paper of the Maytag-Mason Motor Co., of that city, has issued an unqualified denial of the statement. He states that neither he nor a company bearing his name has signed even a dollar's worth of such notes, and adds that he has nothing to do with the management of the Maytag-Mason establishment; a year ago he had an option on it which he did not exercise.

The affairs of the company are in bad shape, however, and to conserve the interests of all, the creditors' committee which has conducted an investigation, has recommended that a receiver be appointed; the necessary legal application will be made before the close of the present week.

Ford Branch Occupies Service Building.

The Ford Motor Co.'s New York staff last week took possession of the handsome three-story service building which the company recently erected at Jackson avenue and Honeywell street, in Long Island City. A retail salesroom will be continued at the old address in New York City, 1723 Broadway, but the offices, stockroom and repair department henceforth will be located in Long Island City.

Purchasing Agents to Produce Trucks.

Benjamin Rosenzweig, purchasing agent for the Buick Motor Co., and Patrick R. Doherty, who served the W. A. Paterson Co., of Flint, Mich., in a similar capacity, have resigned their positions and are organizing a company which will manufacture trucks in either Detroit or Jackson, Mich. E. J. Copeland has succeeded to the vacant berth in the Buick establishment.

Metzger to Triple Size of Factory.

The Metzger Motor Car Co. has let contracts for the erection of two additions to its plant in Detroit, which will triple its capacity. The larger of the two buildings will be a four-story structure 550 x 68 feet, which will be completed within 90 days; the other will be a one-story heat-treating shop 150 x 35 feet.

MILES GETS CONTROL OF PALACE

Heads New Company Which Obtains Lease of New York's Show Building—The Others in the Enterprise.

It developed early this week that in addition to securing the new Grand Central Palace in New York for the "open" show which will be held in January next by the National Association of Automobile Manufacturers, Samuel A. Miles, general manager of that organization, had gone further and associated with several other men who have been identified with exhibitions of various sorts, has formed a company which has leased the Palace and which, therefore, will be in position to control all shows and other displays which may be held in that superb new building.

This new company is styled the International Exposition Co. and Miles is its president. The other officers are as follows: Vice-President, Richard G. Hollaman; secretary and treasurer; James C. Young; managing director, Capt. J. A. H. Dressel. Directors—Edward V. P. Ritter, Charles E. Spratt, Samuel A. Miles, James C. Young, Richard G. Hollaman and J. A. H. Dressel.

Mr. Young only recently resigned as secretary-treasurer and manager of the Madison Square Garden Co. to assume similar duties for the owners of the Grand Central Palace, which will fall heir to practically all of the shows which hitherto have been held in Madison Square Garden, the demolition of which will begin on February 5th next. Capt. Dressel, who will become managing director of the International Exposition Co., fathered several sportsmen's and other shows which have been held in New York and elsewhere and latterly has been connected with the Madison Square Garden management. Richard G. Hollaman, another director, is the owner of the Eden Musee.

Akron Man Gets Patent No. 1,000,000.

Francis H. Holton, of Akron, Ohio, has the distinction of being the owner of United States Patent No. 1,000,000, which was issued to him on August 8th, and which is of interest to the automobile industry in that it applies to a rubber tire. While designated as the one-millionth patent, it is actually No. 1,009,957, as patents granted between 1790 and 1836 (prior to the establishment of the present bureau, in 1836) were issued by the Department of State and were not numbered. Holton's patent was filed April 25, 1910, and bears Serial number 557,336. The inventor's claim, as expressed in the patent, is as follows:

"In vehicle tires, a tire having a core of relatively solid material substantially half-round in cross-section and provided with

an outer portion adhered thereto and consisting of a series of flexible strips of substantially V shape in plan and of substantially half-round shape in face elevation and overlapping successively at their sides, whereby several of said strips are brought into the immediate tread at the same time to carry the load."

Alleged Defects Lead to Large Suit.

Alleging that its business reputation has been damaged to the extent of \$35,000 and claiming \$4,392.17 for breach of contract, the Easton Machine Co., of South Easton, Mass., has brought suit in the Bristol County (Mass.) Superior Court against the Providence Engineering Co., of Providence, R. I., for the recovery of those sums. The Easton company manufactures automobiles and states that it contracted with the Providence concern to produce certain castings, which proved defective, and for which the defendants refused to give credit in accordance with the terms of the contract. On this count, the plaintiffs claim \$4,392.17, and because of orders lost and damage done to its business reputation by the alleged defective castings, the other \$35,000 is sued for. The defendants have entered a general denial and retort that the work was performed under the inspection of plaintiff's representative.

Two Americans to Exhibit in Germany.

Among the exhibitors who have contracted for space at the forthcoming international automobile exposition at Berlin, Germany, October 12-22, are two American manufacturers, the Buick Motor Co., of Flint, Mich., and the Ford Motor Co., of Detroit. Sixty-five manufacturers of complete cars so far have been entered, including one English firm (Daimler), two Swiss, one Italian, two Austrian, one Belgian and nine French makers. One hundred and forty-four exhibitors of accessories have reserved spaces for the display of their wares.

Federal Locates Branch in Chicago.

The Federal Rubber Mfg. Co., of Milwaukee, has established a branch in Chicago, at 1434 Michigan avenue, in charge of George W. Stephens, formerly of the American Tire & Rubber Co., and at one time connected with the G & J Tire Co., as were most of the officials of the Federal company. The Chicago house will handle all of the states of Illinois and Iowa and the northern part of Indiana.

To Develop Parkhurst's Casting Process.

To operate a casting process patented by L. M. Parkhurst, which obviates sand moulding, the Indiana Die Casting Development Co. has been organized in Indianapolis, with \$100,000 capital. E. E. Gates, J. L. Baker and W. P. Herod are the directors of the company, which is seeking a factory site.

BRISCOE SEES 210,000 CARS AHEAD

Predicts That Output and Sales During 1912 Will Be Greatest Ever—Conditions Reported at Conference.

"After careful consideration of the reports we have received from various parts of the country, and as a result of discussions with our branch managers, I am convinced that 1912 will see more motor cars built and sold than ever before in the history of the industry; I believe the output will not fall short of 210,000 cars, in which estimate I do not include trucks or other forms of freight-hauling vehicle."

This is the forecast made by Benjamin Briscoe, president of the United States Motor Co., following a series of conferences with the managers of the big company's branches, the first of which occurred in Atlantic City, and the others, in order, in Detroit, Chicago and Kansas City, the latter of which was attended by the managers from the Pacific Coast. In addition to Mr. Briscoe, the headquarters' officials who were party to the conferences were Horace DeLisser, vice-president; Alfred Reeves, general sales manager; F. E. Dayton, sales manager for Columbia cars; D. C. Fenner, sales manager for Sampson trucks; J. A. Bell, of the Maxwell division, and Ernest Coler of the Car Owners Department.

"The biggest year of the industry up to this time was 186,000 cars, at an average retail price of \$1,533, but 1912 will see not less than 210,000 pleasure cars at an average price of about \$1,100, which indicates a greatly increased number of cars selling at \$1,000 or less, with a substantial increase in the high priced cars," says Mr. Briscoe in amplifying his forecast. "Of this number, I believe at least 60 per cent. will be used by physicians, contractors, salesmen, and others for utility purposes, for the need of a motor car in almost every grade of business life now is apparent.

"Of this big production of motor cars," continued Mr. Briscoe, "the major portion will be made by a comparatively small number of big producers, while the cars that will sell best are certain to be those of reputation that supply ample power and modern style at low prices.

"At our several conferences we had a thorough discussion of trade conditions, and the main impression I gained was the fact that the automobile business now is down to a basis of stability that averages up with any other business dealing in staple articles. We will have types and styles as in any other manufacturing commodity. Reports from our 1,800 dealers in the various towns and cities indicate an active and steady call for our products, the same as there is for other manufactured articles, and also foreshadow a demand greater than

ever before. In no previous year at this time have we had so many orders on our books for immediate delivery.

"That the farmer is growing more and more a factor in our prosperity, is amply proven by reports from the farming districts. We find that the cotton crop in the South this year will be one of the greatest in history, and while in some places crop reports are unfavorable, I am convinced that the general prosperity of the farmers will not be affected to any great degree. Crops in the Dakotas are bad, because of the dry weather, and similar conditions, in a lesser degree, exist in Kansas, Nebraska, Oklahoma and parts of Texas. But the farmers are buying cars and will continue to buy them in greater quantities than ever before, because their use is profitable and they make for better living conditions in the agricultural districts."

Changes Among Prominent Tradesmen.

H. L. Winter has been appointed sales manager of the Federal Motor Truck Co., of Detroit. Previously he was connected with the E. R. Thomas Motor Car Co., of Buffalo.

Fred E. Tucker, formerly with the Pope-Hartford agency in Boston, and later connected with J. H. MacAlman, has become manager of the Pope-Hartford Auto Co., of New York.

J. K. Jamison, assistant sales manager of the Michelin Tire Co., has resigned that position to become identified with the Willys-Overland Co. in Toledo; he will fill a berth in the sales department.

Fred W. Warner has been appointed manager of the Buick Motor Co.'s Chicago branch. Previously and for many years he was engaged in the agricultural implement trade in Dallas, Tex., and other sections of the southwest.

H. E. Shiland has been made sales manager of the Westcott Motor Car Co., of Richmond; Ind. Formerly he was in charge of the sales department of the Buick Motor Co., of Flint, Mich., and was one of the best known men in the trade.

Simon Davis, who for the past five years has represented the Diamond Rubber Co. in Ohio and Indiana, has engaged with the Consolidated Rubber Tire Co., which he will represent in the same territory. He will be attached to the Cleveland branch of which Otis R. Cook is manager.

Norman E. Oliver, manager of the Diamond Rubber Co.'s Buffalo branch, has been designated to succeed Harvey J. Woodard as manager of the Diamond Rubber Co. of New York, Woodard having become general manager of the Century Tire Co. Oliver will make his headquarters in New York City but will remain in charge of the Buffalo establishment also, his authority having been enlarged to include all of the territory east of Buffalo.



Higginsville, Mo.—Auto Livery Co., under Missouri laws, with \$2,500 capital; to maintain an automobile livery service. Corporators—J. S. Santemeyer, E. B. Gladish, S. H. Gladish.

Akron, Ohio—Akron Automobile Club, under Ohio laws, with \$10,000 capital. Corporators—T. L. Lamson, Guy E. Norwood, L. D. Brown, J. B. Campbell, B. A. Polsky, George G. Allen.

Chicago, Ill.—Coey-Ott Livery Co., under Illinois laws, with \$2,000 capital; to operate an automobile livery service. Corporators—Charles A. Coey, Monroe E. Mitchell, Andrew Ott.

Toledo, Ohio—The Parsons Garage and Repair Co., under Ohio laws, with \$10,000 capital; to maintain a garage and do general automobile repairing. Corporators—C. W. Parsons and others.

Natchez, Miss.—Natchez Auto and Supply Co., under Mississippi laws, with \$10,000 capital; to deal in automobiles and accessories. Corporators—S. B. McNeely, C. L. Richardson and others.

Indianapolis, Ind.—Morton Place Automobile Co., under Indiana laws, with \$10,000 capital; to deal in automobiles and accessories. Corporators—Mabelle E. Hutchinson, I. A. Pease, Mary Cheney.

Detroit, Mich.—Cleimat Motor Parts Co., under Michigan laws, with \$50,000 capital; to manufacture and deal in automobile parts. Corporators—Harry E. Walder, Graham Duffield, Henry B. Baxter.

Seattle, Wash.—National Auto Tire Filler Co., under Washington laws, with \$10,000 capital; to manufacture and deal in automobile and other tires. Corporators—John Cort, J. B. Lewis, D. S. Updegraff.

Rock Hill, S. C.—Jones Motor Co., under South Carolina laws, with \$15,000 capital; to deal in automobiles and other motor vehicles. Corporators—W. G. Stevens, E. G. Jones, R. M. London, all of Rock Hill.

Bellingham, Wash.—Coast Auto and Realty Co., under Washington laws, with \$6,000 capital; to deal in automobiles and real estate and maintain a garage. Corporators—L. E. Wattam, E. Peterson, Charles Peterson.

Schenectady, N. Y.—Union Lubricating Co., under New York laws, with \$25,000 capital; to manufacture and deal in lubricating and other oils. Corporators—J. W. Nagle, E. T. Robinson, M. C. Cahill, all of Schenectady.

Boston, Mass.—Raymond Engineering Co., under Massachusetts laws, with \$150,000 capital; to manufacture machinery for all purposes. Corporators—President, M.

F. Hubbard, Taunton; treasurer, J. A. Haley; E. Baintree.

Akron, Ohio—Akron Automobile Club Co., under Ohio laws, with \$10,000 capital; to maintain an automobile club. Corporators—T. L. Lamson, Guy E. Norwood, L. D. Brown, J. B. Campbell, B. A. Polsky, George C. Allen.

Chattanooga, Tenn.—Meridian Auto School and Garage, under Tennessee laws, with \$1,500 capital, to maintain an automobile school and conduct a garage. Corporators—R. E. Stone, J. M. McBeath, C. H. Barr and others.

Chicago, Ill.—Goetz Auto Radiator Co., under Illinois laws, with \$2,500 capital; to manufacture automobile and other radiators and conduct general mercantile business. Corporators—Albert Goetz, Charles F. Lowy, Peter Sissman.

Yonkers, N. Y.—Hudson Valley Automobile Co., under New York laws, with \$10,000 capital; to deal in automobiles and operate a garage. Corporators—Harry L. Twine, A. M. Keene, of Yonkers; George Eickemeyer, of New York City.

Evansville, Ind.—Eclipse Clutch Manufacturing Co., under Indiana laws, with \$100,000; to manufacture and deal in automobile parts. Corporators—E. C. Altenberg, J. W. Ford, J. L. Scheuble, J. G. Beckman, A. L. Swanson.

Lynn, Mass.—Wyeth Motor Car Co., under Maine laws, with \$600,000 capital; to manufacture, build and sell automobiles and motor vehicles. Corporators—President, C. E. Clemence, Lynn, Mass.; treasurer, E. Perry, Portland, Maine.

Newark, N. J.—Ignition Manufacturing Co., under New Jersey laws, with \$100,000 capital; to manufacture automobiles, motor vehicles and automobile and motor supplies. Corporators—P. G. Roder, A. Markowsky, W. L. Roder, all of Newark.

New York City, N. Y.—Consolidated Lubricants Co., under New York laws, with \$25,000 capital; to manufacture and deal in lubricating oils and greases. Corporators—A. R. Pardington, Smithtown, L. I.; W. L. Sawyer, South Nyack, N. Y.; J. N. Patch, Brooklyn, N. Y.

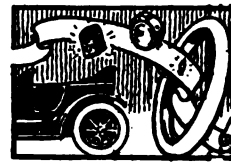
Trenton, N. J.—Auto & Marine Specialty Co., under New Jersey laws, with \$50,000 capital; to manufacture the Williams safety automobile crank and other specialties and novelties. Corporators—C. T. Williams, Jr., H. S. Maddock, Jr., F. D. Holmes, C. C. Thompson, T. H. Bissell, all of Trenton, N. J.

Increase of Capital.

Hartford, Conn.—Miner Garage Co., from \$20,000 to \$35,000.

Change of Name.

Louisville, Ky.—Marshall-Clark Motor Car Co. changes name to Clark Motor Car Co.



A \$20,000 garage is being built at Catskill, N. Y., by Amos Post.

Hal Bailey has opened a garage and salesroom in Galva, Ill. He will handle Everitt cars.

Glen Fisk and Carl Bundy, of Sheldon, Ill., have formed a partnership and opened a garage in Kentland, Ind.

C. J. Maxim has established a salesroom at 1380 Bedford avenue, Brooklyn, N. Y. He will handle the Reo and Brenner cars.

Allan Redmond and Irvine Huehner have opened a garage in Eau Claire, Wis. They will do a renting business as well as general repairing.

Matthew Nelson has purchased the garage and repair shop of F. R. Wells, in Marshall, Mich. He will continue it under his own name.

Joe Regan is building a one-story brick garage in Los Angeles, Cal. It is located at the corner of Pico and Los Angeles streets, and will be 63 x 75 feet.

Three business men of Galena, Ill., have opened a garage and machine shop in their home town. They are Alfred Gray, Gus Stephens and Henry Everett.

Gillett & Krueger is the style of a new firm which has opened a garage in Hutchinson, Kan. General repairing and a rental service are to be conducted.

A. Vandrimmelen and J. L. Goff, of Knoxville, Ia., have formed a partnership under the style of Central Auto & Machine Co. They will handle Carter cars.

J. D. Foose, of Ottawa, Kan., has purchased the business of the Ottawa Motor Car Co. He will do business under the style the Foose Garage & Auto Repair Co.

The Weeber Mfg. Works, of Albany, N. Y., have gone into the motor truck business. They will handle the Mais truck in Albany, Schenectady and Rensselaer counties.

Robert S. Hepburn has opened a garage and repair shop at 16 Woodworth avenue, Yonkers, N. Y. He will do business under the style of the Hudson Auto Machine Works.

T. Sherow thinks Millbrook, N. Y., has been without a garage long enough, and he intends to supply the deficiency. He is remodeling the Jaeger building for that purpose.

The Bloomdale Garage, which was opened a year ago by C. E. Baker & Son in the Ohio town of that name, has been discontinued on account of insufficient business.

The Franklin Garage, at Dover, N. H., which was under the management of W. Scott Spaulding, has changed hands. Herbert Goddard, formerly of Athol, Mass., has purchased it.

Alexander Wilson has taken out a permit for a brick garage at the corner of Grand Concourse and 182nd street, New York City. The structure will cost, when complete, \$28,000.

Hugh Hinds, part owner of the Court Motor Car Co., of Marietta, Ohio, has disposed of his interest to T. L. Riddle. He contemplates opening a larger garage at Indianapolis, Ind.

Johnstown (Pa.) shortly will boast of another big garage "in its midst." The Swank Hardware Co., which handles the Buick line, is building it at the corner of Bedford and Adam streets.

Carroll & O'Brien is the style of a new automobile firm which has leased a two-story building at Waterbury, Conn., which will be ready for occupancy by October 1. It will be 50 x 122 feet.

Lewis F. Hewlett has opened a salesroom at 1392 Bedford avenue, Brooklyn, under the style the Otto Motor Car Sales Co. As the name indicates, the company will feature the Otto car.

Under the style the King Motor Car Co., a new company has been formed at St. Louis, Mo., with E. C. Bartholomew as the moving spirit. As the name indicates, King cars will be dealt in exclusively.

L. A. Ross, who operated a garage at Fennimore, Ia., has sold his business to Everett McReynolds of the same place. Ross, however, still retains his garage at Mineral Point, in the same state.

F. K. Barner, of Hopkinton, Ia., has rented the I. T. Wilson agricultural implement building and will install a garage and salesroom therein. He will also carry a complete stock of accessories and supplies.

The Barrett Motorcar Co. is the style of a new concern which just has opened salesrooms at 906 Main street, Buffalo, N. Y. Frank Barrett is manager of the company, which will deal in Hudson cars exclusively.

T. E. Westbrook has been appointed receiver for the Consolidated Motor Car Co. of Atlanta, Ga., against which involuntary proceedings in bankruptcy were instituted recently. His bond has been fixed at \$900.

Martin Sauer has commenced work on what is claimed will be the largest garage in the state of Iowa, on Main street, Ida Grove. It will be of concrete, absolutely

fireproof, 55 x 102 feet, with full plate-glass front.

At a cost of \$35,000 a new garage is being erected at the southeast corner of Broadway and Thirteenth avenue, Denver, Colo. It will be two stories high, of fireproof construction, and will be managed by Tom Botterfill.

The Ford Auto & Machine Co., of Mexico, Mo., has filed notice of a change of name to Meyers Automobile Co. The company operates a taxicab service, deals in Ford cars, and in supplies, and is in charge of W. T. Swinney.

The Overland Automobile Co. of St. Louis, which was incorporated last week at St. Louis, Mo., has opened salesrooms at 3210 Locust street. H. D. Condie, T. L. Hausmann and C. P. Eberle are the men behind the enterprise.

The Pioneer Motor Car Co., Baum street, Pittsburg, Pa., has been reorganized. The new associates of the company, together with I. G. Davis, who retains the secretary-treasurership, are J. F. Esperon, George H. Hopkins, and James Iams.

The Bruce-Cubbins Automobile Co., of Memphis, Tenn., has removed its headquarters from 237 to 244 Monroe avenue, and changed its manager. George S. Danaher, of Little Rock, Ark., hereafter will direct the business of the company.

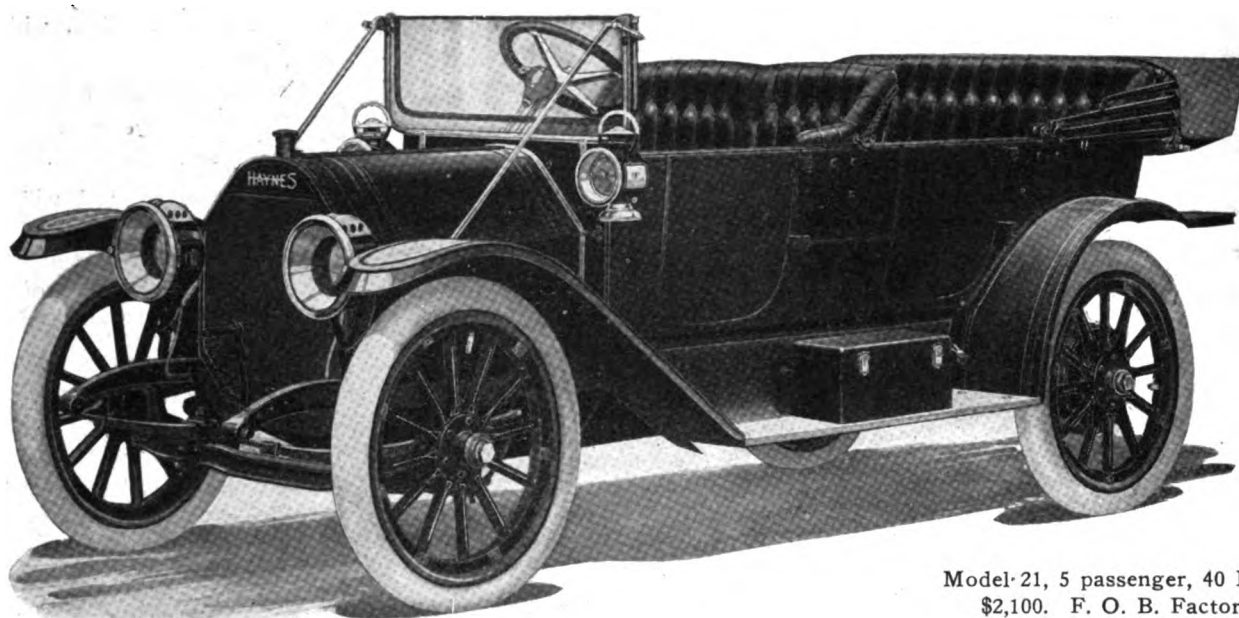
The Parsons Garage & Repair Co., which was incorporated last week at Toledo, Ohio, with \$10,000 capital, has opened headquarters at Jefferson avenue and Michigan street. C. W. Parsons is president and F. J. Lehmann general manager.

Maurer & Hartman, Freeport, Ill., have found their quarters at 88 Exchange street too small, and moved to 51 Exchange street. Simultaneously they have added Chalmers cars to the Olds, Hudson and Packard lines, which they have handled for some time.

The firm of Seabury Brothers, dealers in agricultural implements at Logan, Ia., have added automobile repair work to their other activities, and opened a garage and repair shop in Missouri Valley, the same state. The building is 50 x 150 feet, of cement block construction.

The Wright Brothers—not the aviation experts, but the automobile and agricultural implement dealers of that name in Carrollton, Mo.—are building a new structure in which to house their increasing business. The new garage is 50 x 100, with granitoid floor and clear of posts, and will afford room for at least 30 cars.

The HAYNES 1912



Model 21, 5 passenger, 40 H. P.,
\$2,100. F. O. B. Factory

The eighteenth year of Haynes automobiles is a year of triumph for the pioneer American manufacturer of motor cars.

THE 1912 HAYNES is bigger in every way, and more powerful, than the splendid Haynes models of 1911, and is distinguished by many refinements of style. The time-tested, sweet-running Haynes motor is built with greater stroke and bore. The wheel base has been lengthened. The brakes are larger (1 sq. in. of braking surface to every 13 lbs. of car.) The equipment is complete and of the very highest class. All the models are designed to accommodate dynamo electric lighting. And the

Haynes contracting band clutch is still the most compelling single feature in any American built car.

The Haynes gives everything desirable in an automobile and at a price from one to two thousand dollars less than charged for cars of like character, and only a few hundred dollars more than buyers are asked to pay for "low-priced" cars. Because it is supreme in its field, the Haynes—throughout those trying months following the fire which destroyed our former factory last February—held its agents from coast to coast, in the face of the

most active competition. The judgment of these loyal Haynes agents has been more than justified by the superb Haynes of 1912 and the complete line of models now being manufactured in our great new plant.

The attitude of present Haynes dealers should suggest something to other dealers who may be in a position to take on a high grade line. For several such desirable dealers we have an unusually attractive proposition. If you are interested, please address

HAYNES AUTOMOBILE COMPANY, Dept. U, Kokomo, Ind.

SPECIFICATIONS HAYNES MODEL 21

Motor. 4½ inch bore, 5½ inch stroke, T-head Haynes type cylinders cast in pairs, offset ½ in. Flexible four point suspension.

Wheel Base. 120 inches.

Ignition. Eismann dual magneto, with dry cells for starting.

Carburetor. Stromberg 1½ in., Model B.

Lubrication. Splash and force feed, oil reservoir in lower half of crank case and filled through bleeder pipe in center of crank-case.

Steering Column. Worm-and-gear type. Timken roller bearings on shaft, corrugated hard black rubber rim, aluminum spider, 18-in. wheel.

Clutch. Haynes contracting steel band on bronze drum. Supported by crank shaft. Easily adjusted and lubricated.

Transmission. Selective type, three speeds forward, one reverse. Timken roller bearings.

Rear Axle. Timken full floating type, pressed steel housing supporting full weight of car.

Shaft, nickel steel.

Front Axle. Single piece I-beam 2 inch, drop forged. Spring seat forged integral. Spindles

5-16 inch diameter. Timken roller bearings.

Wheels. Artillery type wood, twelve spokes front and rear. Boss spokes alternating in rear wheels.

Tires. 36 x 4 inch, front and rear. Demountable rims.

Springs. Front, semi-elliptic; 40 inches long, 2 inches wide, 7 leaves; rear, 41½ inches long, 2 inches wide, 6 leaves. Fitted with grease cup, both front and rear.

Brakes. Internal and external on rear wheels.

Drum 14 x 2½ face.

Colors. Body black, 18 coats of paint, all hand rubbed. Wheels black same as body.

All metal equipment, gun metal, black enamel and nickel.

Equipment. Eismann dual magneto, Stromberg Model B Carburetor, silk mohair top, wind shield, Prest-O-Lite tank, five lamps, Warner 60-mile dial Speedometer, extra Dorian Remountable Rim, Tanner automatic gasoline gauge.

Model 21 is built with following bodies: Touring; Close-Couple 4-passenger; Colonial Coupe, \$2,450; Limousine, \$2,750.

Model Y, 50-60 H. P., 7-passenger, is built in touring and fore-door limousine.



PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.
 Joseph Goodman, President. R. G. Betts, Treasurer.
 F. W. Roche, Secretary
 154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2682 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
 Single Copies (Postage Paid) . . . 10 Cents
 Foreign and Canadian Subscriptions . . . \$3.00
 Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
 Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, AUGUST 17, 1911.

Overcrowding the Chauffeur's Field.

That there is merit in the charge that not a few of the evils attributed to the chauffeur's profession are due directly and indirectly to the superabundance of so-called "automobile schools" does not admit of much dispute. No town of any pretensions appears too poor to maintain at least one school of the sort while the larger cities are overburdened with them.

While such institutions may have started some young men on the road to greater things, it is safe to say they have started more of them on a long, fruitless search for employment in a field that has become congested to the bursting point and in which wages, due to the contracted and contracting demand and the over-abundant supply, have been forced down to figures that hold small attraction and smaller promise for the ambitious man. To employ expressive vernacular, "the woods are full" of unemployed chauffeurs. They are of all

ages, sorts and conditions. The public records prove that while the use of motor cars has steadily increased, the number of professional drivers who have found employment and who have found it worth while to renew their licenses has steadily diminished. Due to the "schools," the profession is streaked in all directions with mediocrity—with men who know how to turn a steering wheel and handle a lever and little else. How can it be otherwise when "schools" undertake and profess to impart the knowledge and skill of a machinist in a course of lessons occupying four or six weeks? While the simile may be overdrawn, it is almost as easily possible to imagine doctors or veterinary surgeons being turned out in three months' time.

The "auto schools" have much to answer for. Probably their lure of pleasant work for pleasing pay never will wholly lose its attraction, but to young men who want to become chauffeurs via the six weeks "diploma" route—or by almost any other route, at this time, at least—the best advice that can be given is contained in the little word "Don't." It is the exception and not the rule when disappointment does not await them.

The "Transient" and the Garageman.

Of course, tourists of whatever sort usually are considered "fair game" by most of those with whom they come into contact during the course of their travels, and it is greatly to be feared that there are garagemen who have brought themselves to such a frame of mind that they must be included in that category. While there are those who are given to making large charges for small services in the matter of repairs or adjustments, the garagemen's opportunities are not nearly so great as are the chances of those who "entertain" tourists for more or less extended periods of time.

The average "transient," is housed in a garage for one night only and is seen no more for weeks or months or possibly never again and apparently there are garagemen who make the most of the fact and the sad part of it is that in seeking to make the most of the "transient," petty methods so often are employed. Usually he is charged two if not three or four times the prices exacted from regular customers for storage and service, which would not be quite so bad if first class service were rendered. But it is a by no means infre-

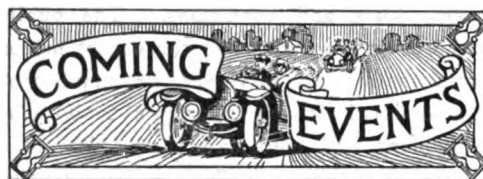
quent complaint that the washing and polishing of the "transient" car is most slovenly performed. Instances are known when the washing consisted merely of wiping off the dust and dirt and the polishing of the brasses comprised little more than the proverbial "lick and promise."

The tourist's complaint rarely serves any purpose. He must be on his way at about the time he pays his bill and if he complains at all, the overshrewd garageman, with his tongue in his cheek, has ready a mouthful of regrets or apologies, occasionally coupled with a smirking threat to discharge the workman guilty of the slovenly work. But there is no record that any garageman ever offered a rebate for service only half performed.

There should be an end to this sort of thing. Not all garagemen are guilty of it, but their number is sufficiently large. To view the tourist and the transient as a "good thing," and to treat him accordingly, is not always a safe proceeding. It has been the means of undoing many hotels and resorts and it can be made the means of undoing overshrewd garagemen who incline to such treatment. Word of mouth advertising is valuable advertising and the tourist performs a lot of it. But when a garage is advertised as "a good place to stay away from," as we have heard some of them referred to by tourists, it is likely to prove more effective and far-reaching than the owners of such places are likely to imagine is the case.

Fusible Plugs for Fuel Tanks.

One of the stumbling blocks encountered by the worthy Municipal Explosives Commission of New York City in its recent and unlamented attempt to establish a new set of garage regulations was Sec. 52. Section 52 it was which provided that no motor vehicle should be stored or kept in a garage unless its tank be fitted with a safety or fusible plug for which a certificate of approval had been issued by the fire commissioner. Inasmuch as up to the moment of the public hearing probably none of those present had ever so much as seen a fusible plug of the sort described and inasmuch as the adoption or non-adoption of such a device must of necessity be a matter beyond the control of the local garageman, it was but natural that representatives of various garage and repair shop enterprises and in particular those of the Automobile Club of America, which operates the biggest garage



of all, should crowd one another rudely in their efforts to gain the floor and voice a protest.

All the same a word should be said in favor of the fusible plug as a device for the protection of automobiles and particularly automobile garages when subjected to the fire risk. For it is one of those devices which, in principle looks as good as it really is, but which the average man would require to have explained several times before he became convinced of its real utility. Furthermore, it is not a fit subject for municipal enactment for the simple reason that the education of the average motorist has not progressed to a point where he is likely to appreciate its advantages. Nevertheless, under ordinary conditions fusible plugs should, and undoubtedly would, prove of unquestionable merit in reducing the actual loss from fire.

The principle of the thing, in a word, is nothing more or less than the introduction of a safety valve in the gasoline tank to perform the function of any ordinary safety valve, namely that of preventing the bursting of the tank from excessive internal pressure. Its effect would be to eliminate the danger of an explosion due to the burning of a car or to the burning of the building in which a car was stored; in a measure it would serve to localize the risk of fire in and about all gasoline cars, thereby robbing fires involving them of much of their real and fancied danger.

Under ordinary circumstances, the heating of the contents of a gasoline tank frequently results in the generation of vapor to a point where a bursting point is reached, when the metal yields, very often at a seam, releasing to the surroundings a mass of explosive mixture, vapor and liquid fuel mixed. The result is sufficiently unpleasant to have given the automobile a bad name among professional fire fighters.

The remedy lies in the simple expedient of preventing the explosion by releasing the contents of the tank before the bursting pressure is reached and in confining its exit to as restricted an area as possible. So released the fuel would be burned and still would generate a tremendous amount of heat, but restricted and burning normally, rather than explosively, the risk of spreading the flames or of actual damage from concussion would be practically wiped out.

Mechanically the fusible plug offers no very serious obstacle to the trained engi-

August 24, Newport, Ind.—Third annual hill climbing contest under auspices Newport Automobile Club.

August 25-26, Elgin, Ill.—Chicago Motor Club's national stock chassis road races.

Sept. 1, Oklahoma, Okla.—Reliability contest under auspices of the Daily Oklahoman.

Sept. 2-4, Brighton Beach, N. Y.—Race-meet under management of E. A. Moross.

Sept. 4, Denver, Col.—Denver Motor Club's racemeet on motordrome.

September 4-5, Brighton Beach, N. Y.—Twenty-four hours race under management E. A. Moross.

Sept. 7-8, Philadelphia, Pa.—Philadelphia Auto Trade Association's racemeet.

Sept. 7-9, Hamline Track, Minn.—Minnesota State Automobile Association's racemeet.

Sept. 7-10, Buffalo, N. Y.—Reliability contest under auspices Automobile Club of Buffalo.

Sept. 9, Bologna, Italy—International road race for the Italian Grand Prix over the Bologna circuit.

Sept. 12-13, Grand Rapids, Mich.—Michigan State Automobile Association's racemeet.

Sept. 15, Knoxville, Tenn.—Track meet, Appalachian Exposition.

Sept. 16, Syracuse, N. Y.—National Circuit track meet, State Fair grounds.

Sept. 18-20, Chicago, Ill.—Reliability contest for motor trucks, under auspices of Chicago Motor Club.

Sept. 23, Lowell, Mass.—Road races under auspices of Lowell Automobile Club.

Sept. 23, Detroit, Mich.—State Automobile Association's racemeet.

Sept. 30-Oct. 7, Sydney, N. S. W.—International automobile exposition under auspices of Royal Agricultural Society.

Oct. 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers' Association's open air show.

Oct. 3-7, Danbury, Conn.—Track meet under auspices Danbury Agricultural Society.

October 7, Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

Oct. 9-13, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

Oct. 14, Santa Monica, Cal.—Santa Monica road races under auspices of Santa Monica Motor Car Dealers' Association.

Oct. 12-22, Berlin, Germany.—International automobile show in Exhibition Hall, Zoological Garden.

Oct. 13-14, Atlanta, Ga.—Race-meet under management H. C. George.

Oct. 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

Nov. 1, Waco, Texas—Race-meet under auspices Waco Automobile Club.

Nov. 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

Nov. 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

Nov. 9-12, San Antonio, Texas—Race-meet under auspices San Antonio Automobile Club.

Nov. 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

Nov. 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

Nov. 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

Nov. 30, Los Angeles, Cal.—Race-meet at Los Angeles Motordrome.

Dec. 25-26, Los Angeles, Cal.—Race-meet at Los Angeles Motordrome.

Jan. 6-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden.

Jan. 10-17, New York City—National Association of Automobile Manufacturers' 12th annual show in Grand Central Palace.

Jan. 27-Feb. 10, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in Coliseum and First Regiment Armory.

neer. A suitable cup secured to an opening in the tank, screens to prevent back-firing, a pipe to direct the outflow of gas in a downward direction toward the rear of the machine, and a renewable breaking plate or plug of a tensile strength safely below that of the metal tank—a few simple parts and an attachment that will permit the renewal of the plug are all that is required. Nor would the expense incident to

is adoption be serious. All that remains is for the manufacturer to appreciate that by the use of a device of the sort a few motorists, who will never learn to be careful about lamps and carburettors too close together, might be saved the entire loss of their cars in consequence of the blowing up of the tanks, while garage fires would lose many of their terrors and much of their real menace to life and property.

GLIDDEN WILL BE TEAM CONTEST

New Plan to be Tried on Tour to Jacksonville—"Cash or Plate" Now Offered to Contenders.

The resurrected Glidden tour, otherwise known as the Eighth National Reliability tour of the American Automobile Association, will be started from New York on October 14. That has been definitely decided, and a number of other points, more or less vague, are cleared up by the entry blanks, which just have been issued.

As was stated previously in the Motor World, the tour will go South instead of North, and Jacksonville, Fla., will be the objective point, 10 running days being required to make the journey, which approximates 1,369 miles. According to the tentative schedule which has been laid out, 90 miles will be covered on the first day, 116 on the second, 184 on the third, 148 on the fourth, 145 on the fifth, 156 on the sixth and 138 on the seventh days. Saturday and Sunday, which are the eighth and ninth days, will be spent in resting, and on the tenth day the tour will be continued with a run of 100 miles; 150 miles will be covered on the eleventh day, and 142 miles on the twelfth and last day will land the motorists in Jacksonville on Friday evening, October 25th.

Though the designation of the tour as a Grade IV contest, which means that penalties will be charged for lateness at control only, so changed it as to make it scarcely recognizable, another change of equal importance, and one which still further changes its semblance to the original Gliddens, is that the tour will be a "team" contest. Which is to say that the Glidden trophy will not be awarded to an individual but will be given to a team of three from the same city or town. Each of the teams may be composed of either touring cars or runabouts, or a combination of both, and is designated by the name of the city or town from which the contestants enter, the trophy going to the team which has the least number of points penalty at the end of the tour. If more than one team is entered from one city or town the first will be designated "Team No. 1," and though any entrant has the option of selecting the team in which he will compete, he must select a team from his own state.

In the case of a tie between two or more of the teams, the cars in each team will be examined by the Technical Committee of the A. A. A. as to the general condition of steering gear, brakes, running gear and front and rear axles, and penalties charged for defects according to a fixed penalty schedule. As has been the rule in former years, only stock cars, duly registered, will be eligible and they will be divided into two classes, touring cars and runabouts,

with seven price divisions in each class, as follows: Division 1A, \$800 and under; 2A, \$801-\$1,200; 3A, \$1,201 to \$1,600; 4A, \$1,601-\$2,000; 5A, \$2,001-\$3,000; 6A, \$3,001-\$4,000; 7A, \$4,001 and over. The price divisions are the same for both touring cars and runabouts. Cash or plate to the amount of \$1,400 will be awarded to the winners in the seven price divisions of each class, the award to be based only on the road performance of the car, the winner being the car which covers the route with the least number of points penalty charged to it.

Though no penalties will be charged for repairs or replacements made en route, provided they do not cause lateness at controls, and despite the fact that the A. A. A. rules specifically state that the preliminary examination shall be omitted in the case of a Grade IV contest, the entry blanks state that one is necessary and that all cars must be delivered to the Technical Committee not later than nine o'clock on the morning of October 10, at a place in New York City to be announced later; each car then will be examined, and, quoting the entry blank, "stamps placed upon its essential parts and in such public manner as to enable all competitors to witness the examination." In addition to the public examination, there will be a period of two hours on Friday, October 13th, from two to four o'clock P. M., when the cars are required to be on view with the bonnets off and floor boards raised for inspection by competitors.

The passenger load, which must be carried the full route, conforms to the 1911 contest rules, which state that four or more persons must be carried in touring cars, while in runabouts and surreys, or cars with miniature tonneaus, at least two persons must be carried. The entry fee is \$25 and entries close on October 1st with S. M. Bätler, chairman of the Contest Board of the American Automobile Association, in New York.

Nebraskans Form County Organization.

The Jefferson County Automobile Association is the title selected by motorists of Jefferson County, Neb., for a new club formed in Fairbury. Each precinct in the county is represented on the board of governors. The officers are: President, J. W. McDonnell; vice-president, Luther Nelson; secretary-treasurer, W. M. Lewis; governors, J. Bergeron and Dr. A. J. Coats, Fairbury; F. W. Denney, Eureka; Dr. C. C. Diehl, Pleasant; S. D. Maw, Newton; Louis Jarchow, Washington; George Cleary, Rock Creek; James Amos, Cub Creek; George Lakey, Richland; Henry Heiliger, Plymouth, and John Nider, Gibson.

Milwaukee Club Fills Vacancies.

J. W. Turfts and O. E. Grover have been elected directors of the Milwaukee Automobile Club. They fill vacancies caused by resignations and will hold office until the next regular annual election.

MOROSS VISITS ELECTRIC PARK

But His Racemeet Fails to Electrify Baltimoreans—Burman Plays Leading Part on Dusty Half-Mile Track.

There was a racemeet at Electric Park, a suburb of Baltimore, Md., on Saturday afternoon, 12th inst., on a dusty and antiquated half-mile dirt track which encircles several large buildings and which permits the automobiles to be seen only during the rush down the straightaway and around the curves. The affair was promoted by E. A. Moross and his racing team, and Bob Burman and William Knipper divided honors. The lack of anything like keen competition lessened what would otherwise have been intense interest, as Baltimoreans are prone to enthuse over sports.

The free-for-all handicap in which Burman, at the scratch, allowed Knipper in his big Mercedes, 15 seconds; John Meeker and Earl Segrist, driving Kline cars, 45 seconds, and Leo Shaab, at the wheel of a Stoddard-Dayton, 30 seconds, was the only event to excite interest. Burman got a bad start, which cost him several additional seconds, and these he was unable to regain, owing principally to the cloud of dust which followed the leaders. The best he could do was to finish third, the race going to Knipper, with Shaab and his Stoddard-Dayton second. Two special events at two and three miles, closed to drivers of Kline cars, went to John Meeker.

In the time trials, Burman, in his Blitzen Benz, established a track "record" of 1:08. Knipper, in the Mercedes, and H. J. Kilpatrick, driving a Hotchkiss, contested with Burman and finished in the order named. The two heats for the Remy Brassard also were contests between Burman, Knipper and Kilpatrick. In each Knipper secured the pole and Kilpatrick had the outside, but they could not beat Burman, who finished first, with Knipper second and Kilpatrick about 75 yards in the rear. The summary:

Two miles, special race for Kline cars—Won by J. Meeker; second, E. Segrist. Time, 3:08.

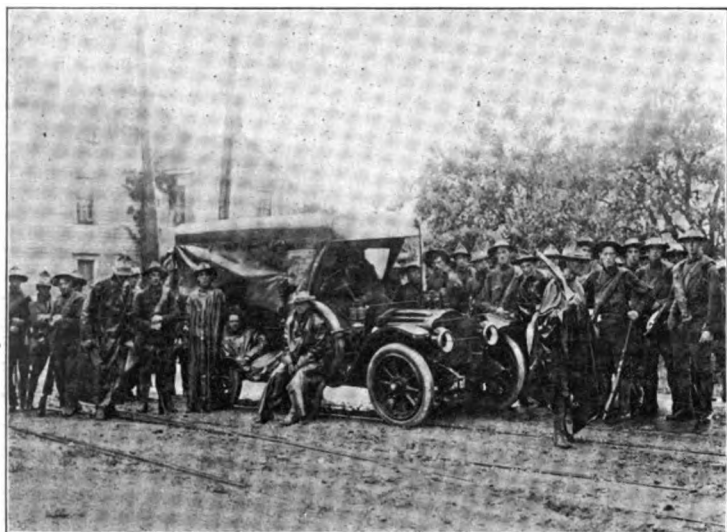
One mile time trials—Won by Bob Burman, Blitzen Benz; second, William Knipper, Mercedes; third, H. J. Kilpatrick, Hotchkiss. Time, 1:08.

Three mile free-for-all, for Remy Brassard. First heat—Won by Burman, Benz; second, Knipper, Mercedes; third, Kilpatrick, Hotchkiss. Time, 3:50½. Second heat—Won by Burman; second, Knipper; third, Kilpatrick. Time, 4:00.

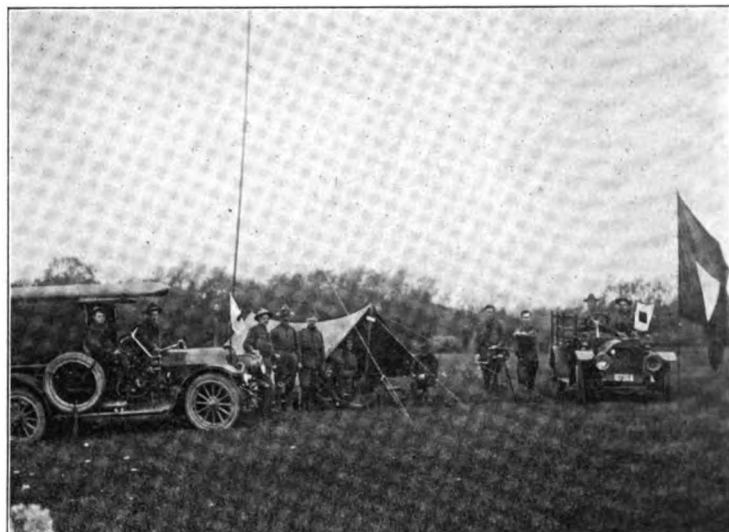
Three miles special race for Kline cars—Won by John Meeker; second, Earl Segrist. Time, 4:24½.

Three mile, non-stock, free-for-all—Won by William Knipper, Mercedes; second, Leo Shaab, Stoddard-Dayton; third, Bob Burman, Benz. Time, 3:52½.

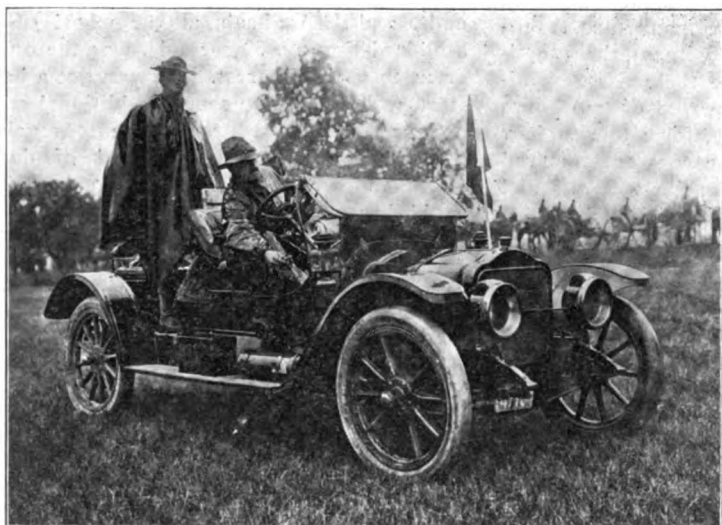
MOTOR VEHICLES EMPLOYED IN THE RECENT "WAR GAME" IN MASSACHUSETTS



WHITE CAR THAT PERFORMED GENERAL SERVICE



KISSEL TRUCKS IN "WIRELESS" SERVICE



ONE OF THE CARS USED BY OFFICIALS



VELIE CAR EMPLOYED BY HOSPITAL CORPS



KISSEL AND WHITE TRUCKS THAT HELPED TRANSPORT BLUE ARMY'S CAMP EQUIPMENT

ARMY THAT USED GASOLINE TRUCKS

How in Massachusetts War Game Motors Were Pitted Against Horses—Advantages That Were Made Manifest.

Probably the most extensive use of motor trucks in army maneuvers in this country was made during the recent war game of the Massachusetts State Militia, in which seventeen gasoline driven trucks supplied the needs of the Blue Army, while the Red Army used fifty of the old horse-drawn army wagons. The utilization of the two different equipments thus afforded a splendid opportunity for intelligent com-

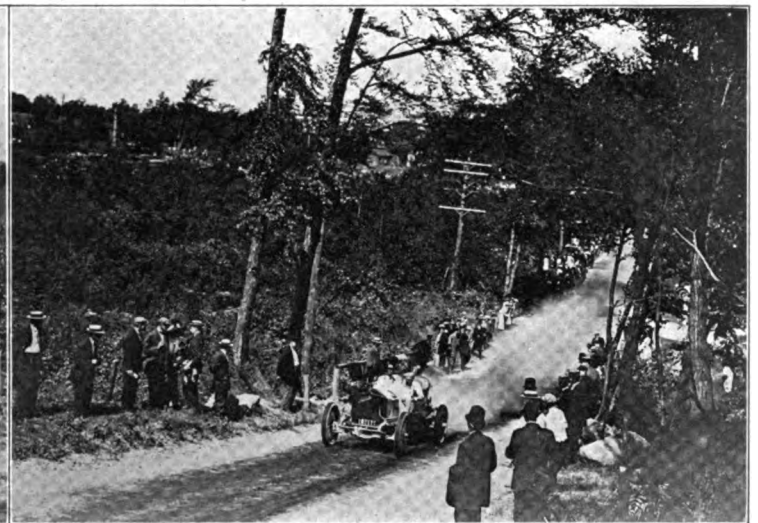
amount of space saved by using seventeen trucks instead of fifty teams of horses—an item which is of the utmost importance when it comes to guarding and defending a transport train. Furthermore, several days' supply of gasoline for the trucks was carried on the cars themselves, while fodder for the fifty teams of horses had to be procured at every camp site, or added greatly to the load they carried.

Aside from carrying provisions, camp baggage, hay for horses and other regular equipment, the trucks were called upon to transport wireless telegraph outfits, wire and poles for temporary lines, and winches for pulling themselves out of trouble when the occasion demanded it. One of the quartermasters of the Second Regiment de-

WILCOX FASTEST ON DEAD HORSE

In Six Starts He Gets Six Firsts and a Record—Long and Varied Program—Promoting Club Discouraged.

While there were other "live ones" on Dead Horse Hill on Saturday last, they were not quite so "live" as Howard S. Wilcox, of Indianapolis. The occasion was the sixth annual hill climb of the Worcester Automobile Club, Dead Horse Hill being the most conspicuous elevation adjacent to the Massachusetts city of that name. It is not improbable that the contest will prove the club's last effort of the



WILCOX (NATIONAL) IN WHIRLWIND FLIGHT NEAR SUMMIT RUTHERFORD (NATIONAL) WINNING THE \$2,001-\$3,000 CLASS

parison, as weather and road conditions for the horse-drawn vehicles were exactly the same as for the motor trucks.

The fleet of trucks included one, two, three and five ton trucks and 1,000 and 1,500 pound delivery wagons. Several of the more prominent American makes were represented in the Kissel, White, and Gramm trucks and Velie touring cars. One of the latter was employed by the hospital corps, while another car of the same make carried photographers and press representatives.

In a drizzling rain the maneuvers started, and the way in which the motor trucks plowed through the mud of the soft country roads caused much favorable comment among the army officers who attended the war game. Loaded with a complete field outfit for 3,000 men the trucks kept their schedule time without trouble, and despite the fact that none of the officers of the commissary department had ever had experience in transporting an entire battalion's equipment on board of a single truck, the work was performed almost without a hitch. Apart from the matter of speed, the attending army officers remarked the

clared that never again will his command "take the field" with the old style equipment. Although used to the work of the old style army wagons for many years, and naturally prejudiced in their favor, he said that the work of the trucks was a revelation to him.

Four Days Added to Chicago Event.

The Chicago Motor Club has decided to make its annual reliability run, set for October, an eight day event instead of one of four days, and has selected a route running through five states. The night stops will be: Indianapolis, 213 miles; French Lick, 190; Louisville, 58; Cincinnati, 170; Columbus, 200; Detroit, 190; Grand Rapids, 190; Chicago, 215, a total of 1,426 miles. The tour is to start October 6 instead of October 9th and will continue to the 13th inclusive.

Palestine Motorists Organize a Club.

The Palestine Automobile Club has been organized in the Texas town of that name. The officers are: President, Dr. A. L. Hathcack; secretary, James Doss; treasurer, Louis Gooch.

sort. However that may be, it will not serve to diminish the glory won by Wilcox on Saturday.

Changing from one National car to another of the same make he competed in six events and won, all of them, incidentally shattering the "gasolene record." He performed this feat in the record trials, making the mile long ascent in 55.45 seconds. The record for the hill is 54 seconds, established in 1909 by L. F. H. Baldwin in a steam car. There were a couple of steamers in evidence on Saturday, but neither came near Baldwin's figures.

The record which Wilcox broke was 58 seconds, made last year by Caleb Bragg in a big Fiat. Wilcox and his National cars were so fast that they got inside Bragg's figures four out of six times that he made the flight. Fred W. Belcher, in a Knox, also twice bettered Bragg's performance. There were other Nationals present but none of them equaled Wilcox's mount, although they gave good accounts of themselves. J. M. Rutherford, F. E. Randall and John G. Pugh piloted the Indiana made cars, but Rutherford alone emulated Wilcox by securing a first. John

Jenkins, who drove a Cole, was the only man who, like Wilcox, "repeated." He placed two victories to his credit.

Productions of Eastern factories were slimly represented. But three of them were present and they figured in three events as winners, due solely to the fact that they had no competition and enjoyed walk-overs. The honors all went westward.

The program was a long one and as varied as it was long. There was an event for almost every classification under the sun. It was so long and so varied, in fact, that five of the events failed to fill and were declared off for lack of entries, while seven of the twenty which were decided were in the nature of walk-overs. Only two contests had more than three starters, those for stock cars of from 301 to 450 cubic inches, and for non-stock cars

per cent., the last half mile having an average rise of 8.8 per cent.

Insofar as the sport was concerned, there were no accidents, no thrills and little of the spectacular, Wilcox's great work being the chief feature and causing the greatest buzz of comment. The story of the day is fully told by the following summary:

\$2,001 to \$3,000.

Driver and Car.	Time.
1 J. M. Rutherford, National.....	1:04.3
2 J. J. Coffey, Knox.....	1:08.16
3 John E. Pugh, National.....	1:11.00

\$1,601 to \$2,000.

1 R. B. Wiggins, Velie.....	1:21.15
2 G. C. Jessup, Buick.....	1:36.5
3 G. R. Wallace, Jr., Velie.....	1:48.55

\$1,201 to \$1,600.

1 H. S. Bauer, Oakland.....	1:37.1
2 W. C. Wiggin, New Parry.....	1:47.85

2 G. L. Kaeser, Empire.....	1:55.1
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Non-Stock Cars, 451 to 600 cubic inches.

1 H. S. Wilcox, National.....	0:55.7
2 Fred Belcher, Knox.....	0:55.8
3 J. J. Coffey, Knox.....	1:07.15

Non-Stock Cars, 301 to 450 cubic inches.

1 H. S. Wilcox, National.....	1:01.7
2 F. E. Randall, National.....	1:02.8
3 J. M. Rutherford, National.....	1:03.35
4 J. J. Coffey, Knox.....	1:06.85
5 G. C. Jessup, Buick.....	1:14.2

Non-Stock Cars, 231 to 300 cubic inches.

1 J. Jenkins, Cole.....	1:16.35
2 H. J. Hebbich, Cole.....	1:20.95
3 E. White, Cameron.....	1:43.2

Non-Stock Cars, 161 to 230 cubic inches.

1 D. C. Hooker, Buick.....	1:29.4
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Free-for-all, any motive power.

1 H. S. Wilcox, National.....	0:55.5
2 Fred Belcher, Knox.....	0:57.65
3 W. T. Walsh, Stanley Steamer....	1:06.85



BELCHER (KNOX) GETTING INSIDE PREVIOUS RECORD



JENKINS (COLE) MAKING HIS SECOND "KILLING"

of the same dimensions, in both of which Wilcox outclassed the other contenders and won by safe margins.

This paucity of real competition rather wet-blanketed the sport and served to add to the discouragement of the club officials who had given so freely of their time to the promotion of the contest. The crowd, too, although larger than last year—numbering about 8,000 people—was much smaller than had attended the earlier contests. The lack of support afforded by Eastern manufacturers and the tall expense for prizes incurred by the long program, not to mention other things, has about convinced the hard-working officials of the Worcester Club that the game is not worth the candle, and unless a change comes over the spirit of their dreams during the next twelvemonth Dead Horse will be more than ever entitled to its designation, so far as the club is concerned.

The hill, according to survey, is exactly one mile in length and the first quarter mile rises 10.3 per cent. and then eases away to 8.3 per cent. The steepest portion is the second quarter, where it reaches 12.2

\$801 to \$1,200.

1 H. S. Bauer, Oakland.....	1:50.15
2 E. White, Cameron.....	3:57.55

\$800 and Under.

1 F. W. Pilling, Krit.....	2:10.1
Stock Cars, 451 to 600 cubic inches, minimum weight 2,100 pounds.	

1 J. J. Coffey, Knox.....	1:03.6
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Stock Cars, 301 to 450 cubic inches, minimum weight 1,800 pounds.	
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1 H. S. Wilcox, National.....	1:00.35
2 J. M. Rutherford, National.....	1:03.5
3 F. E. Randall, National.....	1:05.45
4 J. J. Coffey, Knox.....	1:05.8
5 G. C. Jessup, Buick.....	1:09.25
6 J. E. Pugh, National.....	1:12.7
7 Peter Cole, Velie.....	1:14.75
8 G. R. Wallace, Jr., Buick.....	1:15.7

Stock Cars, 231 to 300 cubic inches, minimum weight 1,500 pounds.	
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1 John Jenkins, Cole.....	1:17.55
2 A. W. Peard, Firestone.....	1:24.25
3 H. J. Hebbich, Cole.....	1:29.6

Stock Cars, 161 to 230 cubic inches, minimum weight 1,200 pounds.	
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1 Arthur Johnson, Hudson.....	1:48.1
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Stock Cars, 160 cubic inches and under, minimum weight, 900 pounds.	
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1 F. A. Witt, Flanders.....	1:18.85
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Exhibition Commercial Cars, Class 1C.

1 Harry Fisher, Gramm.....	6:25.25
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Exhibition Commercial Cars, Class 2C.

1 A. C. White, Cameron.....	2:00.5
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Worcester County, Amateur.

1 Jay Clark, Jr., Stanley Steamer...	1:15.75
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Non-Stock Free-for-all, Gasolene Cars.

1 H. S. Wilcox, National.....	0:55.70
2 Fred Belcher, Knox.....	0:56.90
3 J. J. Coffey, Knox.....	1:00.70

Non-Stock Cars, Record Trials.

1 H. S. Wilcox, National.....	0:55.45
2 Fred Belcher, Knox.....	0:56.30
3 Jay Clark, Jr., Stanley Steamer....	1:02.40
4 J. J. Coffey, Knox.....	1:03.20

First "Automobile Road" in New York.

"This Road for Automobiles Only" is the sign which just has been displayed on the wood paved road which recently was completed on Pelham Parkway, New York, and which parallels the main macadamized driveway. The sign suggests the first public "automobile road" in the big city, if not in the East, but unfortunately cyclists and drivers of horse-drawn vehicles use it whenever in the mood to do so.

Clutches; Their Functions and the Several Types

A clutch, according to the Standard dictionary, is "a power transmitting device operating as by friction or interlocking for securing or breaking rotative continuity." To the automobile owner or operator it is all of that and it may be more. Which is to say, that in addition to being a device by means of which the power from the engine is transmitted to the change gear mechanism and thence to the road wheels, it may be, and not infrequently it is, a fruitful source of trouble. And paradoxical as it may seem, nine times out of the proverbial ten the reason for the trouble is the very simplicity of the clutch itself.

If clutches were come complicated and therefore required a little more attention the number of cases of clutch trouble probably would show a decided decrease. As it is, the majority of clutches are so very simple that they are not even thought of until something goes wrong. Then the clutch is blamed, and it is styled a "necessary evil." That it is a necessity is sure; whether or not it becomes an evil rests largely with the operator. Manufacturers make clutches right and they will stay right until they wear out, provided they are given a little—a very little—attention. But on the score that enough is sufficient, it is essential that a knowledge of the working of the clutch be obtained, though in this respect it should be remembered that the instructions generally issued by manufacturers are paramount and invariably should govern procedures.

Owing to the fact that internal-combustion engines develop their power by reason of explosions within the cylinder walls, and as the greater the number of explosions which take place within a given time unit the greater will be the power developed, it is apparent that a certain number of revolutions of the crankshaft a minute are necessary before sufficient power will have been developed to move the vehicle. To transmit the power of the engine is the chief function of the clutch. It is necessary also to allow the engine to run "free" until it is generating the required power, and to permit of the engine being disconnected from the driven mechanism temporarily to allow of the ratio of engine revolutions to driving wheel revolutions being changed, or in other words, to permit of gear shifting, which operation is practically impossible, at least without danger of damage resulting, unless at least one of the gears which it is desired to engage is stationary.

With external combustion engines, such as steam engines, and with electric motors, clutches are not necessary because the

power is not developed in the engine or motor but is stored in the boiler or battery, as the case may be, and a little of the power, or the maximum which always is held in reserve, may be used at will to start the engine, or the motor, and consequently the vehicle, from a standstill.

As it requires more power to start a vehicle than it does to maintain it in motion, clutches must be so made that they may be caused to slip slightly while the vehicle is being started in order that the number of revolutions of the engine, and consequently the power, shall remain constant until the

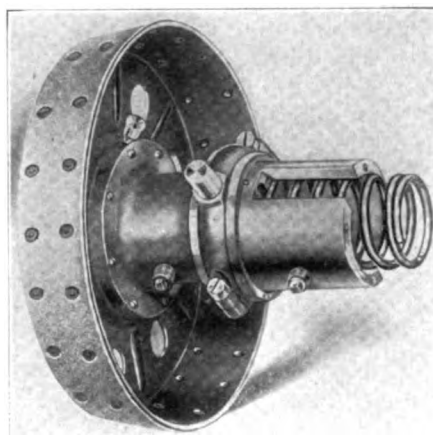


FIG. 1.—MITCHELL PRESSED STEEL CONE

vehicle begins to move, when the power may be reduced and the clutch caused to grip firmly. If, for instance, the clutch on an internal-combustion engined vehicle were a positive interlocking device, and supposing that it were possible to engage its driving and driven members with the engine running at the speed necessary to start the car, one of two things would happen, viz., something would break, or the engine would be "stalled," and as soon as the engine stops the power stops.

Therefore, one of the considerations of a good clutch is that it must be possible to slip it at will both for starting and slow running, and also to relieve the engine by permitting it to "turn up" faster and still transmit power on long hard hauls. In other words the clutch must accelerate the car "sweetly," without jar, and at the same time positively. On the other hand, the clutch must not slip except at the will of the operator. Last but not least, the driven member of the clutch, to which the gears are attached, must not spin unduly after the driving and driven members are disengaged.

As it is absolutely essential that the clutch be slipped at times, it is apparent

that a positive interlocking device is impossible of application, and for this reason friction clutches invariably are used. At present, all pleasure vehicles which are the products of American manufacturers, and which have selectively operated change gears, are equipped with master clutches as differentiating from those built some years ago, which were equipped with individual clutches for each of the speeds as obtained by the gear changing mechanism. Individual clutches, while practical—and that they are so is proven by the fact that even today there are a number of cars in use which employ them—necessitate an inordinately bulky and heavy change gear mechanism, and this system now is obsolete. Instead, the master clutch, more commonly referred to simply as the clutch, has supplanted the older system, the result being increased simplicity, reduction of weight and of moving parts, and consequently a reduction in the complication of the car as a whole.

There are five types of clutches in use, as follows: cone, multiple disk, plate, expanding shoe and contracting band. A recent census of American manufacturers shows that car makers are almost exactly evenly divided as regards the use of cone and multiple disk clutches. The plate clutch comes next as regards the number of manufacturers who use it in one form or another; the expanding shoe practically has gone out of use, but one manufacturer now making use of it, while the contracting band clutch is used by only two well known builders in the United States.

As its designation implies, the cone clutch consists of two cones which fit into each other, the female one being the driving member, this usually being formed integral with the flywheel, and the male member which is driven and which is attached to the change gear mechanism. That the driven member may be as light as possible to prevent excessive spinning, which might result in injury to the gear teeth when gears are shifted, and to allow of rapid acceleration for the same reason, it usually is an aluminum casting, though pressed steel, which daily is coming into greater prominence, may be used with excellent results.

Fig. 1, which illustrates Mitchell practice, shows a pressed steel male member in which the frictional material is leather. Leather is used almost universally as a friction material owing to its peculiar properties, though other materials, made principally of asbestos, and in some cases containing fine copper threads, are used to some extent. Eliminating the possibility

of the clutch members getting out of line, and thereby causing that species of clutch trouble known as "chattering," the particu-

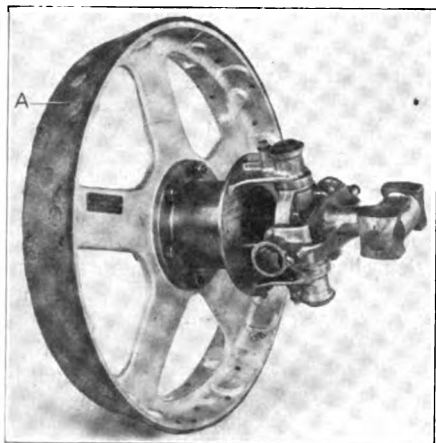


FIG. 3—POPE-HARTFORD CONE CLUTCH

larly long clutch bearing which is provided in this instance is worthy of note. Obviously, this clutch, and as a matter of fact, all others of the leather faced cone variety, are intended to be run dry, which is to say, they are not supposed to be lubricated beyond an occasional dressing with neat's foot or castor oil, to preserve the leather in that state of flexibility and moisture which is absolutely necessary for sweetness of action.

In some makes of clutches, smoothness

springs are compressed more and more, increasing the effective area of the friction material, till the clutch is fully engaged. As the area of the friction material in contact with the female member is smaller when the clutch is only partly engaged, a greater amount of slipping takes place, and as the area is increased the slipping decreases

which is to say that when the clutch is disengaged the male member is partly outside the flywheel casting. The internal type of cone clutch differs from the other in that the cone is reversed. As the internal cone clutch necessitates that the flywheel be made in two parts in order that the cone may be inserted in the first place, it is

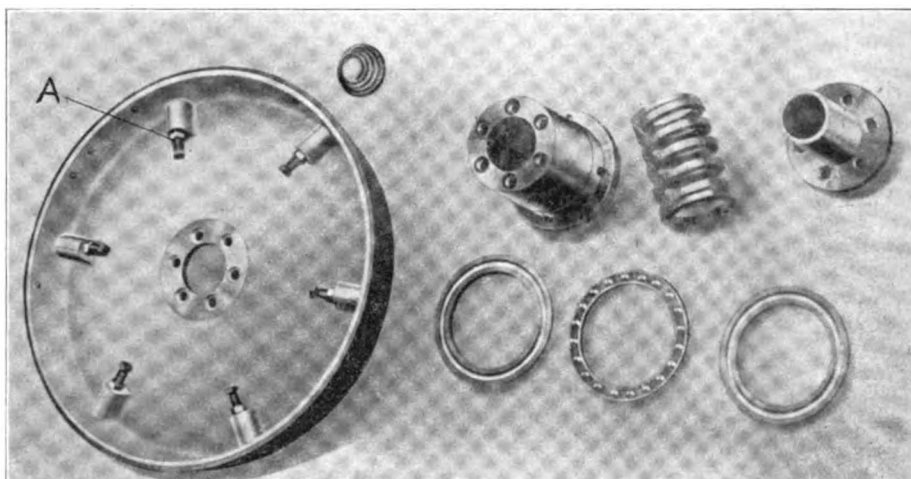


FIG. 2—SPRINGS THAT EASE ACTION OF KISSEL CONE CLUTCH

gradually until it stops when the clutch is fully engaged.

A somewhat similar arrangement of springs is shown in the Kisel clutch, which is illustrated in Fig. 2, except that in this case the springs are spiral instead of being

much more expensive to manufacture, and owing to the fact that it possesses no advantage other than that the thrust on the crank shaft bearings may be eliminated more easily than can be done with the external clutch, it has fallen into disuse.

Comparatively recently another method of ensuring smooth action by the insertion of cork in the leather facing has been developed, and a large number of manufacturers now use clutches which are so

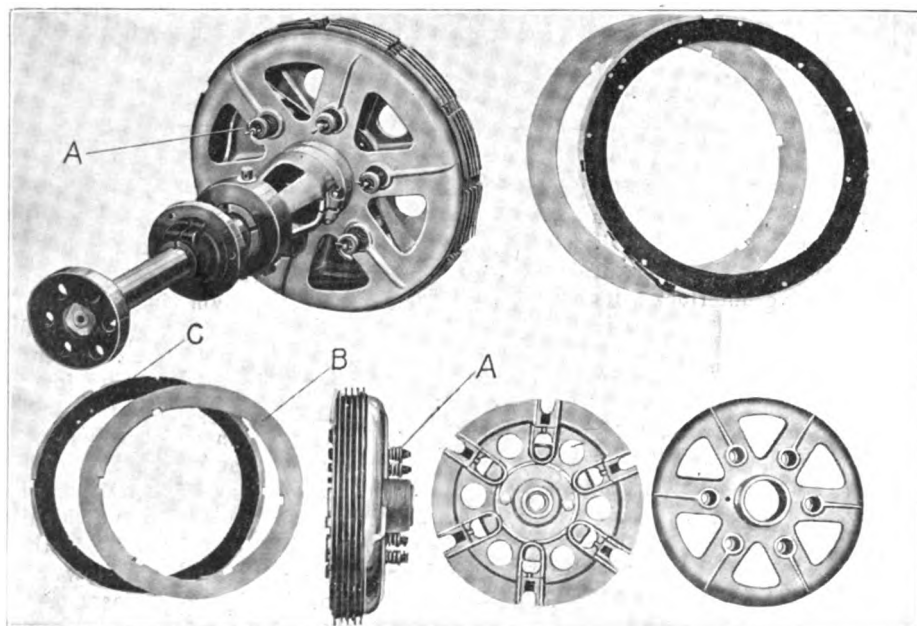


FIG. 4—STEARNS DRY PLATE MULTIPLE DISK CLUTCH DISASSEMBLED

of action is ensured by providing small flat springs under the leather face at intervals around the periphery. In action, these springs press the leather away from the metal to which it is attached. As the clutch is "let in," the "high spots" come in contact with the female member first and as weight is removed from the clutch pedal, allowing the engagement of the clutch, the

flat. They are enclosed in the small housings designated A, and in action they are practically the same as the flat springs. The male member which is illustrated is an aluminum casting, and like the pressed steel member shown in Fig. 1, it is faced with leather.

Both of those types of clutch which have been described are of the external type,

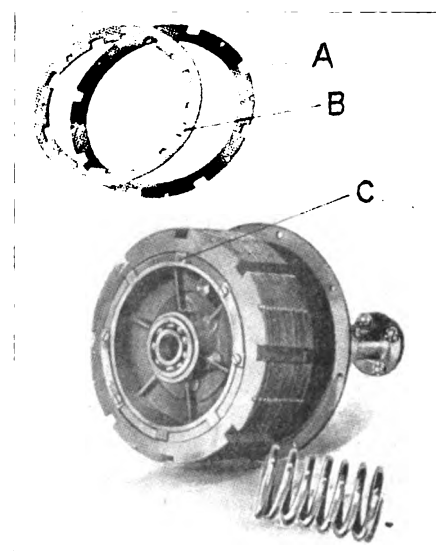


FIG. 5—MATHESON MULTIPLE DISK CLUTCH

equipped. The cork (or corks) are inserted in the manner shown in the Pope-Hartford clutch shown in Fig. 3, the corks being designated A. The use of cork, however, is not confined in application to cone clutches, but may be, and is, used with equally good

results on clutches of all types, and also has been used in brakes.

The particular virtue of cork as a frictional material lies in its great elasticity coupled with its high co-efficient of friction and its remarkable ability to withstand heat and wear when used under compression as an insert. The corks are inserted in sockets in the periphery of the male clutch member and protrude a fraction of an inch beyond the leather facing or other frictional material. Applied in this manner, the cork always works alone at low or medium pressures, but at higher pressures the leather or metallic surface in which they are inserted also comes into engagement.

Owing to the manner of placing the corks in sockets under pressure the wear on them is very slight, the natural elasticity of the cork causing the inserts to return to their original height above the metal or leather facing as soon as the spring pressure on the clutch is released. Cork in-

The multiple disk clutch, as its name implies, consists of a number of thin metallic disks, varying from 10 to 60, half of which are keyed to the engine, being usually encased in a housing in the flywheel, and half attached to the change gear mechanism. The "driving" and "driven" disks are placed alternately, and when the clutch is engaged, these disks are pressed together firmly and thus form a friction drive of considerable surface. Multiple disk clutches are of two general types, those that operate in an oil bath and those that run dry, the former usually being composed of alternate steel and bronze or all steel disks and the latter of steel disks, one set of which is faced with friction material.

The Stearns clutch, illustrated complete and also disassembled in Fig. 4, is of the dry type, the driving disks (C) being faced with an asbestos friction material, and the driven disks (B) being hardened and ground saw steel. Differing from usual practice, which embraces the use of a sin-

ing the driving and driven disks to their respective members. The slots (A) in the driving disks engage similarly shaped lugs in the flywheel housing while the slots (B) in the driven disks engage the lugs (C).

Differing from the usual type of multiple disk clutch, the Hele-Shaw clutch, illustrated in Fig. 6, and which also is of the oil bath type, consists of a number of alternate bronze and mild steel disks which have a V-shaped corrugation around their peripheries which increases the amount of effective friction surface, and consequently the gripping effect, threefold.

Referring to the illustration, the outer oil-tight case (1), to which the driving bronze plates (16) are keyed, is bolted to the flywheel of the engine. The inner core (2) is keyed directly to the clutch shaft and to it are keyed the driven steel plates (17). The clutch is shown engaged as normally held by the spring (4) which actuates the ring (7) and the sliding presser (3). To facilitate quick disengagement, small

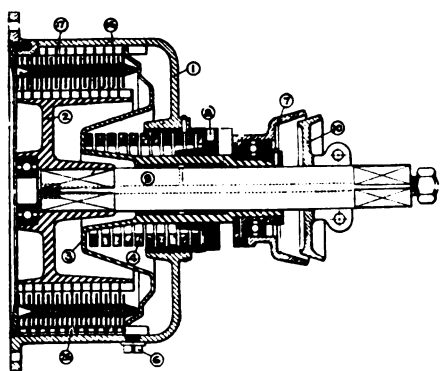


FIG. 6—HELE-SHAW CORRUGATED DISK

serts possess many advantages, not the least of which is that owing to the high co-efficient of friction of cork, clutch spring pressures may be materially reduced, in addition to which it is pointed out by the National Brake & Clutch Co., by whom patents governing the use of cork inserts are owned, that even in the presence of oil which might cause slippage unless excessive spring pressures were used to maintain contact, the corks so largely increase the frictional adhesion that slippage is eliminated with but moderate spring pressure.

The principal objection to the cone clutch is its size and weight, both of which are necessary when high powers are to be transmitted. When the male member is released obviously there is a tendency for it to continue in rotation for a certain length of time, and as it is difficult, at least, to shift gears with the "clutch spinning," to say nothing of the chance of damage resulting to the gear teeth, it is necessary either to wait until the spinning has ceased or to provide some means of stopping it. For this purpose, and to eliminate "dragging," the clutch brake has been devised and is used by a number of manufacturers, though opinion is divided as to its merits.

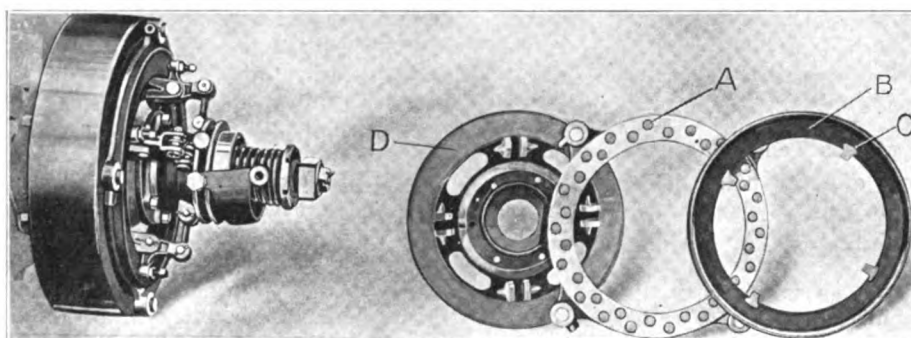


FIG. 7—THREE-PLATE CLUTCH USED ON VELIE CARS

gle large clutch spring around the clutch shaft, the Stearns clutch is equipped with a number of small springs (C) arranged in a circle around the shaft.

The particular virtue of the multiple disk clutch lies in the fact that owing to the large friction surface which is obtained through the use of a number of disks, it may be made comparatively small and light. An additional advantage is that the multiple disk clutch, of either the dry or oil bath type, may be slipped without damage to a greater extent than can the cone type. Both types provide extremely smooth action, though in this respect it is a matter of opinion which is the better or smoother of the two.

The Matheson clutch, which is illustrated in Fig. 5, operates in an oil bath, the theory of its operation being that when the plates are brought into contact, as when the clutch is engaged, a thin film of oil remains for a time between the disks and is squeezed out gradually. As the oil is squeezed out, the friction between the disks increases, and when all the oil has been forced out the disks are in contact, the engagement, which is governed by the rate at which the oil is forced out, therefore being gradual. This illustration also shows the method of key-

ing the driving and driven disks to their respective members. The slots (A) in the driving disks engage similarly shaped lugs in the flywheel housing while the slots (B) in the driven disks engage the lugs (C).

Differing from the usual type of multiple disk clutch, the Hele-Shaw clutch, illustrated in Fig. 6, and which also is of the oil bath type, consists of a number of alternate bronze and mild steel disks which have a V-shaped corrugation around their peripheries which increases the amount of effective friction surface, and consequently the gripping effect, threefold.

The expanding shoe clutch is very seldom used in present day practice, there

being but one little known manufacturer who regularly uses it. As has been previously stated, a successful clutch must be fairly light at the rim, but with the expanding clutch, owing to its method of operation, this is almost impossible, since the moving parts and their connections are of necessity near the rim. Some manufacturers have attempted to get over this difficulty by making expanding clutches very much smaller in diameter, but this method has the disadvantage that the parts must be made small and therefore are hard to adjust. In addition, small parts are liable to get out of order and to wear rapidly, and this reason, and because of the fine adjustment which small parts require, probably accounts for its absence on modern cars.

The contracting band clutch also is heir to some of the ills of the expanding type, though it has the advantage that, as it is outside the fly wheel, all parts are readily accessible and are easy of adjustment. Careful refinement of detail and the use of better materials have made this type of clutch possible, however, and it is used by several prominent manufacturers with excellent results.

Ingenious Tell-Tale for Tail Lights.

Tired of being haled before magistrates and fined for having permitted the rear lamp to be extinguished, a German chauffeur recently devised an adaptation of the laryngoscope which enables him to keep the number on the rear of his car in constant view. It consists of a prism, attached to the rear of the car in such a manner as to reflect the illuminated number to a second prism enclosed in a tube. The second prism conveys the image by means of two other prisms to the dashboard of the car, where on a ground glass plate, about two inches square, a greatly reduced picture of the number appears, visible at all times when the light is shining upon the plate. Some years ago an English patent was granted for a mirror arrangement designed for a similar purpose, but after a few trials it was dropped, on account of its liability to damage and general unreliability. The present system, being completely enclosed in metal tubing, is said to be dust-proof and fool-proof. Should the shape of the tonneau require it, more prisms may be added without interfering with the clearness of the image.

Fennies That Render Cranking Easier.

When an engine of the objectionable pattern that is built without either compression release or petcocks refuses to start, a simple method of rendering cranking easy is to insert pennies between the respective exhaust valve stems and tappets, this raising the valves slightly off their seats. By this means it will be an easy matter to "swing" the crank. Once the difficulty has been located and remedied the "props" can be removed.

DO WIRE WHEELS LESSEN TIRE WEAR?

**Interesting Experiment Conducted Abroad
Indicates an Affirmative Response—
American Opinions on the Subject.**

Controversies regarding the relative merits of wire wheels and the very much more common wooden artillery wheels have been numerous, and while it now is generally accepted that if the factor of strength and safety with wire wheels is no greater, at least it is as great as with the artillery type, the question of the effect of each type on tire wear still remains, due principally to a lack of accurate data on the subject. Such data, recently obtained through a series of experiments made by one of the largest British manufacturers, the Daimler Co., Ltd., however, tends to show that under certain conditions wire wheels possess a decided advantage in this respect, which fact is still further supported by the opinions of a number of members of the Automobile Club of America who recently were canvassed in an effort to ascertain their views on the economy and efficiency of wire wheels.

As a result of the canvass made by the A. C. A. it developed that of four members whose cars were equipped with wire wheels none had an objection to offer. Though they were unanimous in their views as to the superior strength of the wire wheels, only one could state positively that their use resulted in a saving in tire expense. "My calculation is that I get 1,000 more miles of travel out of my tires on the wire wheels than I did when I used wooden wheels," he said. Several others advanced the opinion that at least the wire wheels did not wear the tires out any faster than wooden ones, and there was a general feeling that tire depreciation was less with wire wheels than with the more commonly used wooden ones.

The experiments which were carried out by the Daimler company were made by that department which has to do with the renting of cars in London, and a careful record was kept of all repairs and replacements. The tires used were of the non-skid variety, 37 x 6, and as all of the cars to which they were fitted were practically identical, with heavy covered bodies, the figures obtained are instructive in that they show that with wire wheels the average number of miles per cover obtained was greater by 1,404 miles than that obtained when the tires were fitted to wooden wheels.

For the test, 100 covers were used, half of them being placed on wooden wheels and the other half on wire wheels. The total mileage obtained from the 50 covers taken from the wire wheels aggregated 172,731 miles, an average of 3,454 miles per cover, as against an aggregate of 102,524

miles, giving an average of 2,050 miles per cover for those fitted to artillery wheels. Though the tires were of the non-skid variety, it is not stated whether they were of the steel-studded type, though it is probable that they were not.

Why V Engines Lack Popularity.

"The question has been asked why the V type of engine has not made any appreciable headway among motorists, though it occupies so pre-eminent a position in aeronautics," remarks a well-known British authority, who adds: "It is possible that the difficulty of even selling a car which has a wide bonnet is a sufficient and therefore a final reason against its adoption. There are, however, minor difficulties. Thus the importance of being able to use the standard magneto ignition is such that if the groups of cylinders are to be in V form, the angle used should be such as to ensure that the interruption of current does not occur when the armature is in a poor position for cutting the magnetic lines. Again, the arrangement of inlet, exhaust, and water pipes is less convenient than with vertical cylinders, and the use of splash lubrication is rather less satisfactory, since the cylinders on one side of the crank case get much more oil than the others, and it is difficult to adjust the amount of lubricant so that the one set of cylinders does not smoke and the other set does not get dry. When time and work begin to prove that the car engine of 25 horsepower by R. A. C. rating, weighing 300 pounds, can be replaced by one which weighs but 100 pounds, the solid advantage and economy of the latter may begin to tell, and the preference for a long bonnet over a wide one will give way. But the 100 pound engine is still to seek."

Straw as a Non-Preventive of Skidding.

Straw may be a good thing to slip under the wheels of a hay wagon when the ground is muddy and the wheels are slipping, but it is not so safe when applied to the rear wheels of an automobile. At least, that is what Arthur Taylor, a Kansas farmer, says—and he ought to know, because the experience cost him his brand-new automobile. His car was stalled in the sand and he piled a heap of wheat straw under the wheels. When he started the engine again the exhaust gases issuing from the muffler were hot enough to set fire to the straw, and in less than fifteen minutes his car was a heap of worthless junk. He has ordered another car, but he included in the order a set of non-skid chains as the most important accessory.

When Measurements May be Deceptive.

When gauging the amount of fuel in the gasoline tank with the elementary expedient of thrusting a stick down through the filler opening, it is well to observe whether the car is standing on level ground or whether it is inclined.

MAKERS DISCUSS CONTEST RULES

**Many Changes Recommended to A. A. A.,
But Few of Them Made Public—Min-
utes of Meeting Being Transcribed.**

As a result of the last meeting of the general rules committee of the Manufacturers' Contest Association, which was held in Detroit on Friday last, 11th inst., it is practically certain that the contest rules of the American Automobile Association will be changed considerably to conform to a number of recommendations which were made during the session. For some time it has been apparent that the rules of the sports governing body are not just as they should be and the purpose of the meeting was to ascertain the views of the members on a number of questions covering racing and other contests from nearly every angle.

Fifteen Members of the Manufacturers' Contest Association were present. S. M. Butler, chairman of the Contest Board and F. E. Edwards of the Technical Committee of the American Automobile Association also attended the meeting which was long drawn out by reason of the great number of matters which were up for discussion. But until the minutes of the meeting are transcribed not much that is truly satisfying will be made public.

One of the principal recommendations which was made, and one which in all likelihood will be incorporated in the rules was that the weight limitation in stock car events be removed. The recommendation was made at the request of a number of light car manufacturers who complained that they were being discriminated against in this respect and was accepted with the further provision that stock car events be reduced in number so that they can be run under the direct supervision of the A. A. A. Contest Board.

During the general discussion on racing which followed, Chairman Butler pointed out that owing to lack of funds to employ competent men the Contest Board was unable to exercise the rigid supervision which racing demands and it was decided to have a committee attend the meeting of the M. C. A. in New York on Sept. 6 and ask their co-operation and financial backing in order to place the Contest Board on an independent basis.

When approached on the subject of the meeting, Chairman Butler, though courteous, was none the less firm in his refusal to say anything whatever about it and suggested that the desired information might be obtained from Russell A. Field, secretary of the M. C. A. Field, however, was equally reticent and excused himself by saying that the minutes of the meeting had not yet been transcribed and that nothing definite would be said until the first of next week.

From other sources, however, at least some of the things which were done leaked out and the sum and substance of them is as follows: It was unanimously decided that no more sanctions be issued for half-mile tracks and it was further recommended that mile tracks be safeguarded by the liberal application of oil or some other substance to lay the dust and that the fence be moved away from the course. To insure the carrying out of such regulations it was decided that each promotor be required to file a bond before a sanction is issued. It also was suggested that the number of starters be limited to one for every 400 feet of track.

Matters pertaining to reliability contests and to beach and road racing likewise were threshed out and though recommendations were made in each case they have not been divulged, and it probably will be some time before the M. C. A. decides to take the public into its confidence.

Finds Shorter Road Cross-Continent.

Transcontinental motor trips are becoming so common that it will not be long before a number of regularly laid out routes are at the disposal of every motorist in the country, to follow which he has but to "mind the map" and watch the signs at the cross roads. Generally these transcontinental trips have followed either the northern "prairie" route, or the southern route, the so-called Santa Fe trail. A third and more central route, however, has just been charted and laid out by W. A. Peck, western sales manager of the Midland Motor Co., who covered the 2,645.5 miles in 124 hours' running time.

The new route leads through the Rocky Mountains in Colorado by way of Tennessee Pass and the Holy Cross Forest Reserve, touching Buena Vista and going through the Western Slope fruit country and the Utah desert, through the mining towns of Ely and Eureka, thence to Reno and Sacramento to San Francisco.

The itinerary of the whole trip is as follows:

	Miles.	Hrs.	Mins.
Moline to Des Moines.....	229.6	8	15
Des Moines to Omaha.....	178.2	6	21
Omaha to Gothenburg.....	270.3	8	41
Gothenburg to Sterling.....	203.7	6	3
Sterling to Denver.....	147.0	5	15
Denver to Buena Vista.....	134.6	7	4
Buena Vista to Glenwood Springs	138.2	8	32
Glenwood Sp'gs to Debeque..	60.5	3	32
Debeque to Palisades.....	30.0	1	15
Palisades to Grand Junction..	14.5	..	25
Grand Junction to Mack.....	21.2	1	2
Mack to Thompson.....	67.8	6	23
Thompson to Woodside.....	60.0	4	8
Woodside to Sheya's ranch... 63.8		5	23
Sheya's ranch to Scofield....	15.7	2	41
Scofield to Thistle.....	36.5	2	45
Thistle to Salt Lake.....	68.5	8	6
Salt Lake to Kearney's ranch..	172.6	8	6
Kearney's to Schellbourne....	81.3	4	40
Schellbourne to Ely.....	48.0	..	58
Ely to Eureka.....	79.3	3	51
Eureka to San Francisco.....	529.2	31	21
	2,645.5	124	37

ELGIN PREPARES FOR ITS BIG DAY

**Entries for National Road Races Promise
Stirring Sport—Arrangements Effected
and Prizes Listed.**

With a total of 29 entries to date—cars which for speed and endurance are well known to the initiated and the uninitiated alike, and drivers who with but few exceptions have proven their ability in previous road races, many of them in fact having contributed their share to the contests over the same course last year—the 1911 national stock chassis road races which will be held on Friday and Saturday, 25th and 26th inst., at Elgin, Ill., give promise of equaling, if not bettering, in speed and in general interest those of last year; it was then for the first time that the 8½ miles course near the Watch City was the scene of a national event, or for that matter of any other automobile contest.

Ralph Mulford, the blond New Yorker, who last year simply romped away with the Elgin trophy, the chief bone of contention, will be there to defend the trophy; De Palma will be on hand with a Simplex; Spencer Wishart, who previously has been seen almost exclusively at the wheel of a Mercedes, will pilot another Simplex; Hugh Hughes, who of late has been "cleaning up" with a Mercer, is due to start—all of them in the race for the Elgin trophy—and of course Harry Grant, twice winner of the coveted Vanderbilt cup, will be there with his famous "No. 18" Alco.

As a matter of fact, there will be two other Alco cars there as well, the occasion marking the debut of the Alco racing team of three. Frank H. Lee, Grant's former mechanic, will pilot the second Alco, and Harry Hartman will handle the third one. All three of the cars will be "decked out" in new racing toggery, which means that the familiar black chassis and the uniforms of the drivers will be enlivened by the addition of a white stripe. On the cars, the stripe will be on the frame members from the front to the rear spring connections; the drivers' black sweaters will have a two-inch white stripe around the right arm and similar stripes will be woven into their stockings. The National stable also will be well represented, though its drivers have not yet been named.

For the lighter car races, the Illinois trophy for cars in the 301-450 class, the Kane County trophy race for the next size smaller cars—231-300 inches—and the race for cars in the "baby" class for the Aurora cup, which last year was styled the Fox River trophy, but which this year has been renamed in recognition of the generosity of the Aurora Automobile Club in donating the cup, equally well-known drivers have "signed up," and though some of the names still are withheld, the entrants as a

whole constitute a "classy" lot. The complete list to date is as follows:

Elgin National, stock chassis under 600 inches.

Car.	Driver.
Alco	Grant
Alco	Hartman
Alco	Lee
Cino	Burt
Lozier	Mulford
Mercer	Hughes
National	Not named
National	Not named
Pope-Hartford	Buck
Simplex	De Palma
Simplex	Wishart

Illinois Trophy, stock chassis 301-450 inches.

National	Not named
National	Not named
Vellie	Jeffkins
Vellie	Stickney

Kane County Trophy, 231-300 inches.

Cino	Raimey
Cino	Burt
Colby	Pearce
Colby	Armstrong
Colby	Not named
Cole	Jenkins
Cole	Not named
Corbin	Maisonville
Fal	Greiner
Fal	Gelnaw
Fal	Pearce
Mercer	Hughes
Mercer	Barnes
Staver-Chicago	Not named
Staver-Chicago	Not named
Staver-Chicago	Monckmeier

Aurora Cup, stock chassis 161-230 inches.

Abbott-Detroit	Roberts
Ford	Kulick

The length of the course this year will be exactly the same as last year—8½ miles—but in view of the extensive alterations and improvements which have been made, it is not unlikely that the record of 62.56 miles an hour made by Mulford will go "by the board." The road has been considerably widened in places and many of the sharp curves have been straightened out; the home stretch has been widened from 16 to 54 feet; the Udine turn, which last year caused a considerable slackening of speed, has been remodeled and widened to 100 feet and the telegraph poles have been moved out of the way. More oil has been sprinkled to date than was used last year, and in fact everything possible has been done to increase the safety of both contestants and the public. As an almost certain indication that a record crowd will be on hand, it is stated that already the sales of tickets and parking spaces is greater than the total last year.

The prizes, too, are fatter than ever. To the \$2,500 which is offered by the Chicago Motor Club and the Elgin Road Racing Association, by whom the affair is being jointly fathered, there has been added just about twice that much again. The Remy Electric Co. holds out the promise of \$250 for first, \$100 for second, and \$50 for third to each of the Remy equipped cars in the three larger races; the Bosch Magneto Co.

has hung up \$350 for the big race and \$200 for each of the others; the Dorian Rim Co. offers \$250, \$150 and \$100 for the first man to finish on Dorian rims in the Elgin trophy, the Illinois trophy and the Kane County races, respectively.

The use of a Rayfield carburetter by the winner of the Elgin trophy will bring in \$500, while \$100 goes to the winners in each of the other races, these amounts having been "hung up" by Findeisen & Kropf. The Stromberg Motor Devices Co., heads the list, however, with \$1,600 to be distributed, \$500 of which will be given outright, regardless of equipment, merely to encourage speed. Of the \$500, \$200 goes for the fastest lap in the Elgin trophy race and \$100 in each of the others. In addition, the use of a Stromberg carburetter is worth \$500 to the winner of the big race and \$200 to the winners of each of the others. The amount is still further swelled by the offer of the Sears & Cross Co. of \$200 to the users of its speedometer.

Lessons Learned in Tour to Helena.

In Minneapolis, where the Twin Cities to Helena reliability tour had its inception and recently was brought to a very successful ending in the last named Montana city, those motorists who made the long trip have not yet stopped eulogizing on the merits of their special "Automobile train"—the train that not only provided the tourists with food and lodging but in addition furnished them with that requisite of metropolitan life, a daily newspaper. "The Carburetter," it was styled, and if there was anything that happened on the tour which failed to meet at least one of the many pairs of eagle eyes of the editorial staff it must have been inconsequential indeed. The paper was printed on the train—not mimeographed or typewritten, but printed and well printed, too.

But to get back to the train, and that there were few of those on the tour who were not glad to get back to its sheltering portals—if trains have such things—was evidenced by the rushing business that was done in "eats and sleeps," it was such a good feature of the trip that already plans are under way to have another such moving hotel "officially entered" in next year's tour. That the tour will be held next year is certain, though it is by no means as certain just where it will go. It is possible that either Spokane or Portland will be chosen as the destination and it is likely that the distance traveled each day will be less, which will be possible if the tourists are accompanied by a "hotel train" which can be stopped anywhere along the route to suit their conveniences.

Different rules will be adopted, if possible, as a modification of the Grade 3 tour, to promote the sociability side of the run, which was catered to this year by changing the passengers in the cars frequently each day. It is probable also that a lower rate of speed will be enforced, for "beating it"

was the rule this year, and the toll paid in damaged tires and springs was too heavy not to convey a moral. But whatever other changes are made, the method of marking the course surely will have to be changed. Last year plain confetti was used and it blew away. This year long strips of colored paper wired together were used, but they proved altogether too popular with the souvenir-hunting public and also with the prairie dogs, which on more than one occasion were seen carrying them into their holes. Though the paper was not thought to be edible and it hardly was suspected that the little animals wanted it for fodder, one of the voracious participants in the contest declares he saw a yearling bull contentedly munching a bunch of the confetti, and what with the depredations of man and beast there scarcely was enough left to mark the trail and the route was lost several times because of the fact.

Sanitation Expert Crosses the Continent.

After zigzagging for 10,000 miles across the continent in his Stoddard-Dayton car and visiting practically every important city during the eight months' trip, B. O. Tilden, president of the American Sanitary Works, of New York, reached Los Angeles on the 10th inst. on his widely-heralded "Sanitation Tour." Whenever possible, he and the experts accompanying him preached the gospel of sanitation, which in turn is expected to prove highly profitable to the manufacturer of "sanitation" apparatus and appliances. From Los Angeles the party drove to San Francisco and there took the steamed for Honolulu, for a tour of the Hawaiian Islands.

Firestone Averts a Water Famine.

Confronted with a water famine, owing to the shutting down of the city's pumping engines for repairs, the citizens of Akron knew hardly where to turn in their trouble when H. S. Firestone, president of the Firestone Tire & Rubber Co., placed the private pipeline of his company, as well as the big pumps of the Firestone factory, at the disposal of the city. He not only told them to use his own water works as long as they needed them, but that he would not charge them a cent for the use. As a result the Firestone company is decidedly in high favor with the citizens of the "Rubber City."

Elovements That Help Negro Drivers.

Two recent elopements of chauffeurs with their employers' daughters have exerted unsuspected influence in favor of negro drivers. In at least two known instances, the "smart" white chauffeurs employed by well-to-do families which included several daughters of marriageable age, have been displaced by negroes, and to intimate friends the heads of both families admitted that their actions were influenced by the stories of elopements with which the daily press has been filled.

DAYTON'S SLIDE-VALVE A "SIX"

Knight Model Also Has Left-Hand Control and Other Features—Adjustable Seats for All Models.

It has long been known to the trade-wise that Stoddard-Dayton cars were among those that were to be equipped with the Knight engine, but not until the official announcement this week of its plans for the forthcoming season by the Dayton Motor Car Co., of Dayton, Ohio, its builder, was it known definitely on how elaborate a scale the innovation was being planned. And the plans contained a surprise in that the new Stoddard-Dayton Knight car, unlike any of the sleeve-valve products thus far introduced in this country, is to be furnished with a six-cylinder engine having its cylinders cast in groups of three. It

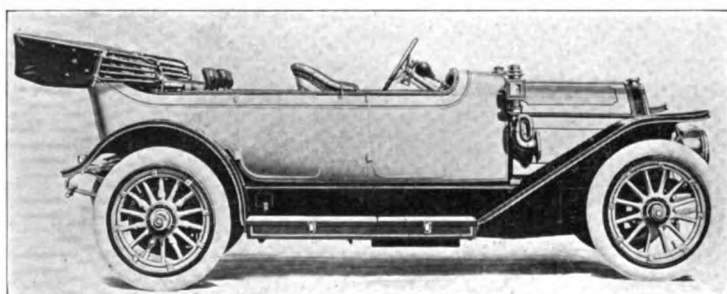
styles and equipments. Due to this amplification of types, which has been a Stoddard-Dayton characteristic for several years, the new line will comprise no less than 25 distinct and catalogued cars. It thus becomes one of the most varied of the many products which the American industry now affords.

Despite the distinction which is gained by the adoption of the sleeve valve engine in the large car, it is the Special that is to be known as the leader of the line. This is described as a seven-passenger touring car having a four-cylinder 5 x 5½ inch motor of 58 horsepower and embodying many of the features which have proved successful in former models together with a number of striking modifications. Among these may be enumerated the adoption of the Bosch "two-independent" ignition system, a magneto coupling that permits adjustment for timing without disengaging the gears, a dash adjustment for the carburetter, the introduction of cored passages

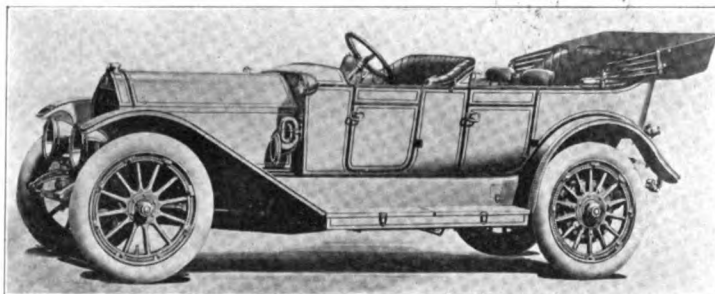
be obtained as a seven-passenger touring car or limousine, a six-passenger torpedo, or with 122½-inch wheel base as a four-passenger torpedo or two-passenger and semi-torpedo roadster.

The Saybrook is a \$2,800 car, constructed with seven-passenger open and closed bodies and with four- and two-passenger open touring mountings. It has a 4¾ x 5 inch motor, like that of the Special, of the valve-in-the-head pattern, and rated at 48 horsepower. It is made with 122½-inch wheel base and shod with 36 x 4½ tires. It has the two-independent ignition system as the two larger cars, save that the current for the electric lights is furnished by a storage battery exclusively, instead of by a dynamo and battery in combination.

An L-head type of four-cylinder motor is employed in both the Stratford and Savoy models, which also differ in equipment from the three larger models, to the extent that they have oil and gas lamps, instead of electric, and which also have dual instead



STODDARD-DAYTON SPECIAL SIX-PASSENGER TORPEDO



STODDARD-DAYTON-KNIGHT SIX-CYLINDER TOURING

also is to be distinguished by an application of left-hand drive with centrally mounted control levers, electric lighting with a dynamo for supplying current and a most elaborate equipment, even for a car selling, as it does, for \$5,000. This equipment, be it added, includes besides the lighting dynamo, storage battery and lamps, 36 x 5 inch tires, top with boots and windshield, Hartford shock absorbers, large Klaxon and bulb horns, Warner speedometer, trunk rack, five demountable rims, spare tire holder, and such approved body fittings as running board tool boxes, foot and robe rails, foot accelerator, seat covers, tools and the usual assortment of extra parts. The standard mounting for the new Knight model is to be a seven-passenger touring car, but it also will be obtainable as a two-passenger semi-torpedo roadster, four-passenger torpedo and a seven-passenger limousine.

Following the practice already inaugurated in other divisions of the United States Motor Co., of which the Dayton Motor Car Co. is a unit, the various models hereafter will be known by distinctive names, instead of by the somewhat illusive model numbers which hitherto have prevailed in designating various products. Thus there will be in addition to the Knight, the "Special," "Saybrook," "Stratford" and Savoy models, each obtainable in a variety of

in the crank case through which air is passed on its way to the carburetter with the double purpose of raising its temperature and cooling the oil, a movable dam lubricating system, and an ejector type of exhaust manifold, so contrived that by a nozzle-like construction, the discharge from one cylinder is made to effect a partial exhaustion of the next cylinder to evacuate, thereby assisting in the clearing of the waste products and securing a virtual scavenging of the cylinders.

Contributing to the comfort of the driver and passenger in front, a most welcome innovation has been introduced in the Knight, Special and Saybrook models, in an adjustable seat arrangement. With equal partiality to motorists who are long or short in length of limb, the seats may be moved forward or back through a sufficient range to secure convenient accommodation. A further point of excellence in design is the provision of rubber buffer-blocks between bodies and frames, thereby taking care of considerable minor vibration which ordinarily tends to rapid body deterioration and which also is transmitted to the persons of the passengers in varying amounts.

The Special model is regularly built with 130-inch wheel base, and, like the Knight car, is electrically lighted and otherwise outfitted in practically the same elaborate manner. Its list price is \$3,500, and it may

of double-independent ignition systems. In other respects they have the full equipment which is a feature of the entire line. The Stratford has a 4¾ x 5¼ inch 38 horsepower motor, 114-inch wheel base and 36 x 4 inch tires. It is fitted out as a five-passenger touring car selling for \$1,850, and also as a seven-passenger limousine or landaulet and as a three-passenger coupe or a two-passenger semi-torpedo.

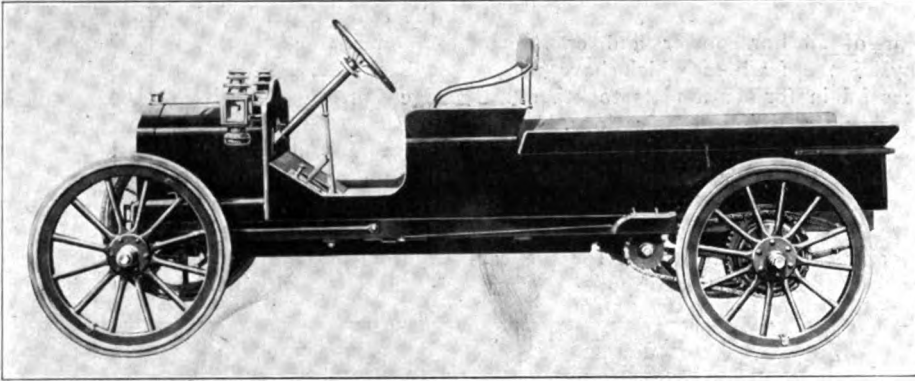
The Savoy, the smallest member of the line, has a 28-horsepower 4 x 4½ inch motor, 112-inch wheel base and 34 x 4 inch tires. It sells for \$1,450 either as a five- or four-passenger touring car, a two-passenger roadster, or with either of two styles of commercial car body.

While the 25 models constructed for the four different chassis are distinct, it is noteworthy that they are uniform in design and conform so closely as to constitute in reality a series of different sizes of a much more limited number of individual types. In this connection it may be mentioned that in the two-passenger roadster type a new style of torpedo construction has been inaugurated. A large storage compartment for spares and luggage is provided in the rear compartment. To afford easy access to this compartment, and at the same time to preserve the continuity of the body lines, entrance to it is obtained through the back of the seat.

NEW IDEAS IN A MOTOR WAGON

Detroit Production that Employs Sectional Frame and Novel Engine—Advantages Sought and Claimed.

In developing its new light delivery car, to which it has given the simple designation the Motor Wagon, the Motor Wagon Co., of Detroit, which scarcely is four months old, has introduced a number of



THE MOTOR WAGON, A NEW LIGHT DELIVERY MODEL

features which long ago were set down as ideal for that particular class of work. They include a double-opposed two-cycle motor, thermo-syphon cooling, planetary change gear mounted on the counter shaft, and a general absence of small parts, which is really remarkable in a motor vehicle of small dimensions. In addition, the sectional form of construction has been adopted, with the result that in the event of damage, portions of the frame may be replaced with an ordinary wrench. The rated carrying capacity is 800 pounds and the price \$610.

By the exercise of considerable ingenuity the motor has been rendered exceedingly simple both in form and operation. It is arranged that the charges in both cylinders are ignited simultaneously. That is to say, the pistons moving in opposite directions, a double charge is drawn into the crank case during each combined induction-compression stroke, while at each firing stroke it is compressed to a sufficient pressure for transfer purposes. But one carburetter is used, as a matter of course, but the cylinders exhaust into separate mufflers. The engine is built without gears, the special form of commutator employed being mounted directly on the crank shaft. Force-feed lubrication is employed, the oiler being mounted above the crank case, as the accompanying picture shows, and driven from the crank shaft by means of a spring belt. The fan type of fly wheel is used, so that the need of a separate fan for draught purposes is dispensed with.

As the impulses in the two cylinders exactly counterbalance each other, it follows that the motor should be free from vibra-

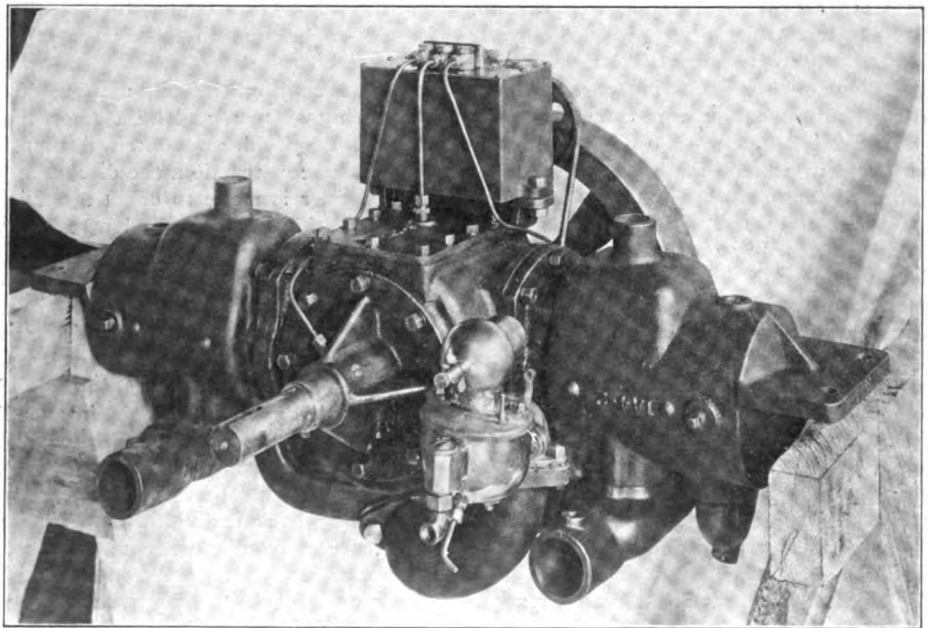
tion and quiet in operation. The cylinder dimensions are 4 x 4 inches and the rated output of 16 horsepower is developed at a crank shaft speed of 900 revolutions per minute. The motor is hung on two points from the main frame, heavy brackets supporting the two cylinder heads. It drives by propeller shaft to the counter shaft unit, which also embodies the two-speed planetary change gear, the latter having a multiple-disk clutch for high speed running. Final transmission is accomplished by

being of the semi-elliptic pattern, transversely placed, while the rear of the vehicle is hung on full-elliptic side springs. The rear axle is of 1½-inch square section, cranked to afford a three-inch drop in order that the loading platform may be as low as possible.

The standard type of body adopted is of the open express pattern, with a loading space 60 inches long by 36 wide. The body sides are eight inches deep, with six-inch flare boards. The loading platform is only 24 inches from the ground, making the machine particularly convenient for the uses of small tradesmen. The gasoline tank, which is of 15 gallons capacity, is located under the seat, conforming to general practice.

How He Kept Patches on Inner Tubes.

"I thought I knew about all there was to know about repairing inner tubes," remarked a motorist, "but I got onto a wrinkle not long ago that I verily believe has saved me considerable annoyance and the trouble of repatching tubes occasionally. I used to be a little bit careless about replacing patched tubes repaired on the road, and as a result I frequently had to do the job all over again a few days later because the patch had worked loose. Finally I discovered that whenever a patch worked loose it was because I had put the tube back in the shoe in the same position it was when it was punctured. In other words, the repaired part of the tube came up against the punctured part of the shoe,



DOUBLE-OPPOSED 16 HORSEPOWER TWO-CYCLE MOTOR WAGON ENGINE

spur type, this arrangement having been adopted with an eye to relieving the gear of the sharp impacts which are incident to steering control in a vehicle equipped with solid tires. A form of three-point spring suspension is employed, the front member

and as there always is a slight abrasion where a shoe is punctured, it just chafed on the patch until it worked loose. Now I am careful to turn my tubes around after they have been patched and I never have any more of that kind of trouble."

ALTERATIONS IN MAXWELL LINE

While Not Radical They Are Notable and Enhance Values—New Oiling System Among Innovations.

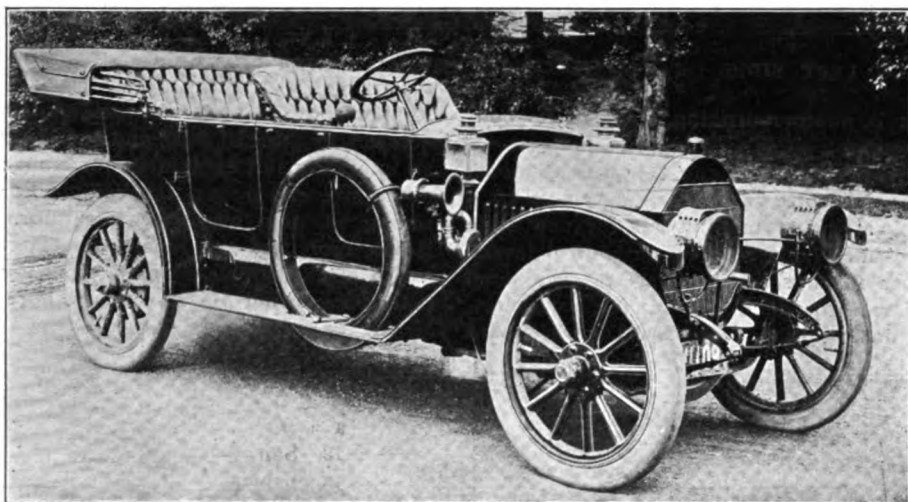
Displacing models GA, EA, I and AB, the "Special," "Mercury," "Mascotte" and "Messenger" will constitute the forthcoming product of the Maxwell-Briscoe Motor Co., of Tarrytown, N. Y. In a general way, as the preliminary announcement of sev-

of Maxwell design in respect to power plant construction and general arrangement of parts, it is an entirely new and much larger model than has been produced heretofore. It is equipped with a long-stroke motor of $4\frac{1}{2} \times 5\frac{1}{4}$ inches, bore and stroke, which takes a 36 horsepower rating, although it is said to develop fully 40 horsepower under favorable conditions. The cylinders are separately cast, instead of being arranged in pairs, as in the Mascotte, but the extension of the upper crank case section to form a housing for the

struction which has become familiar in connection with the so-called "pump-over" system, of which the new Maxwell is in reality a modification, the crank case is not subdivided. Instead there is provided under each crank a small trough which is directly in the path of the connecting rod and into which a small knife-blade attached to the under side of the connecting rod bearing dips at each revolution of the shaft.

It is the cutting of the several small knives through the oil in the respective troughs that causes the oil to be splashed up against the cylinder walls and piston interiors, whence it finds its way down the sides of the case into the different bearings and finally back into the lower portion of the engine base casting. Owing to the relatively small cross-sectional area of the troughs, it follows that the level of oil in them is practically unaffected by disturbances of the car, whether it is starting and stopping, running on side-sloping roads or on grades. On this account there is no risk of either starving or flooding either of the cylinders so long as the oil in the troughs is constantly being replenished.

To take care of the increased power of the new model the diameter of the disks employed in the multiple-plate clutch has been increased. Otherwise the construction of that member as well as that of the three-speed change gear set, remains practically the same as has become standardized in Maxwell practice. One marked point of structural difference between this and the smaller models, however, is the employment of a full-floating type of rear axle, instead of the semi-floating type which



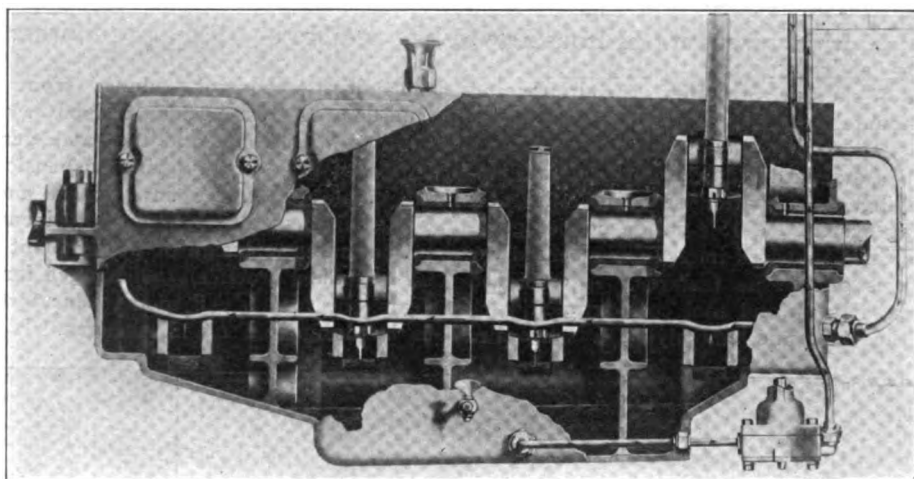
THE NEW MAXWELL SPECIAL 36 HORSEPOWER TOURING CAR

eral weeks ago forecast, the mechanical construction of the line will remain substantially as heretofore. At the same time several refinements of a more or less important nature will serve to render the new cars distinctive as compared with those now current, not the least striking of these features being the new style radiator and hood which have been adopted, and which perpetuate a style which was originated for another of the United States Motor Co.'s varied products, namely the Columbia. Despite the introduction of a more conventional type of radiator, however, the thermo-syphon cooling system, which is a time-honored Maxwell characteristic, has been retained.

In the matter of body designs, too, the new cars have been brought into the way of more conventional practice, straight-line elevations, high doors, concealed latches and inside mounted control levers being the ruling feature. Furthermore, as a mark of comfort to drivers and passengers who share with them the front seats, all enclosed bodies now are to be fitted with adjustable ventilators. The equipment of the Special, which is practically the standard for the entire line, includes magneto, gas lamps, generator, two brass dash and one tail oil lamps, horn, tool kit, jack, pump, tire holder, and complete tire repair kit and tools.

The Special is to be known as the leader of the line. While following the lines

clutch and a base for the entire power plant unit is a feature which is common to all models. The engine is equipped with a new oiling system, which in several respects is decidedly original.

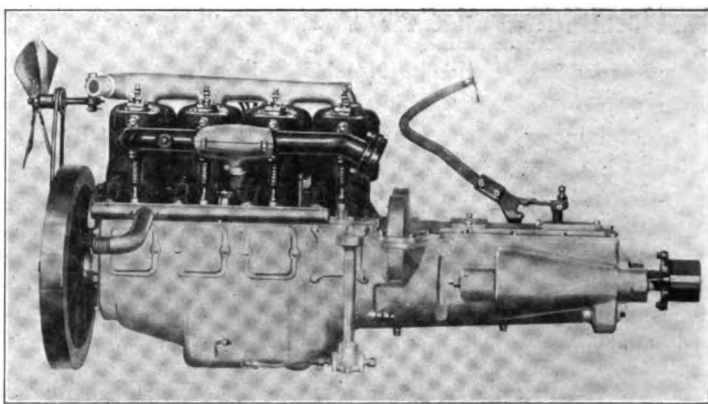
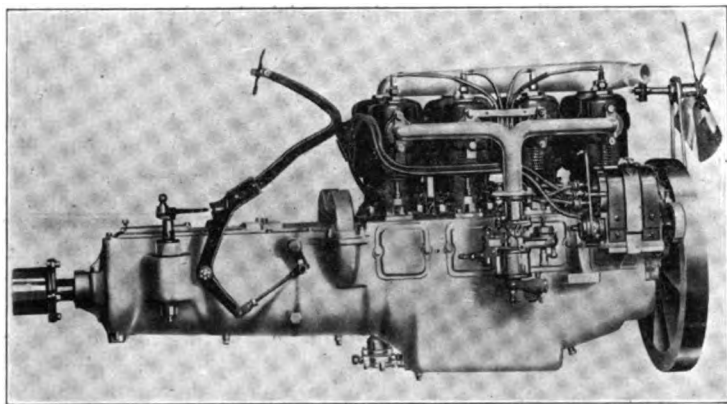


VIEW SHOWING ARRANGEMENT OF NEW MAXWELL OILING SYSTEM

While in reality a modified splash system, the new method of lubrication embodies the trough system of distribution, which ensures a supply of clean oil for feeding purposes at all times, and likewise provides for the filtering of the lubricant periodically, so that any particles of foreign matter are automatically removed from it. Instead of the double-bottom con-

heretofore has been used. The new Special, likewise has an I-beam front axle instead of one of tubular section.

Other specifications of the machine are 114-inch wheel base, 34 x 4 inch tires and semi-elliptic front and three-quarter elliptic rear springs. The standard width of tread is 56 inches. For the southern trade, however, a special 60-inch tread width will



VIEWS SHOWING RIGHT AND LEFT SIDES OF NEW MAXWELL SPECIAL POWER PLANT

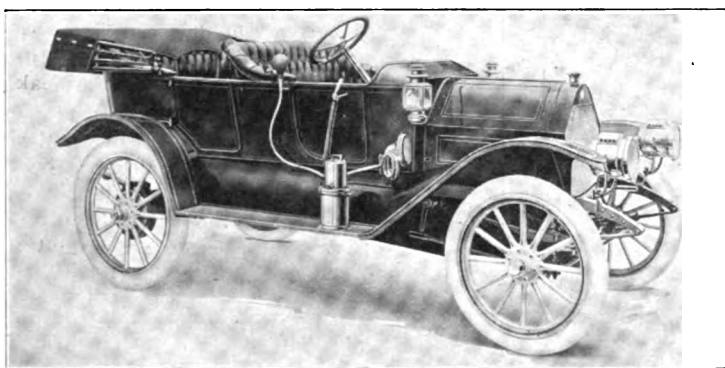
be supplied. Double external-internal brakes on the rear wheels also are included in the specifications. The car sells for \$1,280 with complete equipment.

The Mercury model, which lists at \$1,150, is termed a "mile-a-minute" roadster. It has a flush-sided, ventilated body, Bosch racing magneto, instead of the Splidorf equipment which is used on other mem-

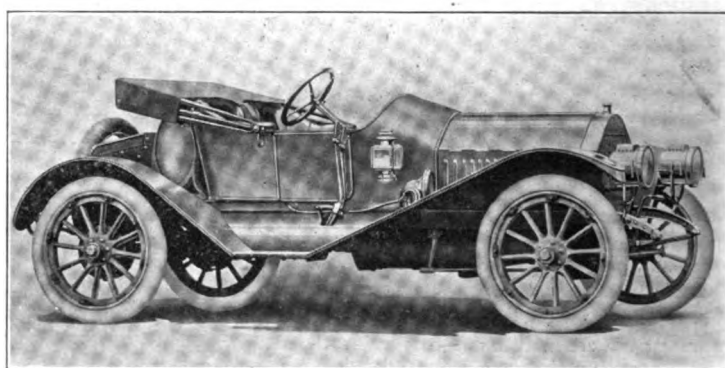
ber of the line, Stromberg carburetter and demountable rims. Its motor equipment consists of a four-cylinder $4\frac{1}{4} \times 4\frac{1}{4}$ inch unit of standard Maxwell construction, embodying, as a matter of course, the new oiling system. A $15\frac{1}{2}$ -gallon copper gasoline tank, mounted immediately behind the seat, is one of its features. A combined luggage trunk and tool compartment back of the tank and embodying a spare tire

rack is another striking point in its construction. Practically continuing the present model I, the Mascotte has the same style of 4×4 inch vertical motor, but has the new style flush-sided body with inside control levers. Other of its useful points are the new hood and radiator, improved Maxwell carburetter, dual ignition, "Stoddard-Dayton" spark

16 horsepower runabout, selling at the noteworthy price of \$600, and outfitted with an unusually full equipment for a machine of its size and power, the equipment consisting of top, magneto, generator, gas lamps, tools and tire repair kit. The motor is of the double-opposed type, its cylinders measuring $4\frac{1}{2} \times 4$ inches, bore and stroke.



MAXWELL MASCOTTE 25 HORSEPOWER TOURING CAR



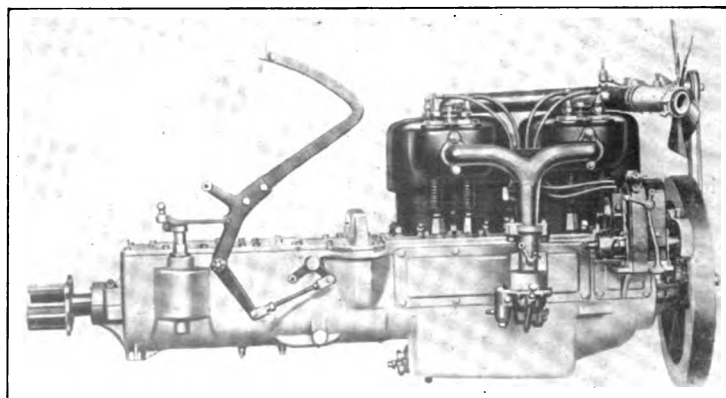
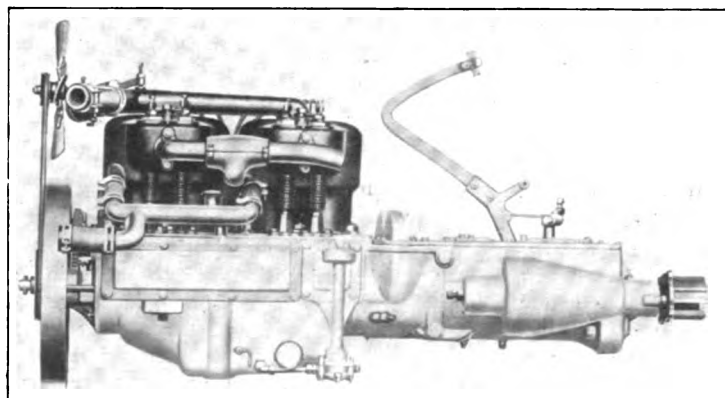
MAXWELL MERCURY 28 HORSEPOWER ROADSTER

bers of the line, Stromberg carburetter and demountable rims. Its motor equipment consists of a four-cylinder $4\frac{1}{4} \times 4\frac{1}{4}$ inch unit of standard Maxwell construction, embodying, as a matter of course, the new oiling system. A $15\frac{1}{2}$ -gallon copper gasoline tank, mounted immediately behind the seat, is one of its features. A combined luggage trunk and tool compartment back of the tank and embodying a spare tire

and throttle control, tubular front and semi-floating rear axles, 32-inch wheels, 104-inch wheel base and the same general design of brakes and spring suspension as are employed on the new Special model. The equipment also is practically identical.

Continuing a design of power plant that has remained practically unchanged for five years, the former AB model henceforth is to be designated the Messenger. It is a

In respect to color-scheme, a distinction is to be made between the various types, instead of making a single combination suffice for the entire line. The Special will be dressed in royal green as to its body, with wedgewood green running gear. The Mascotte will have a dark blue body finish with wheels finished in battleship gray; the little Messenger is to be finished in dark blue with light blue wheels and gear.



TWO VIEWS SHOWING THE CONSTRUCTION OF THE MAXWELL MASCOTTE POWER PLANT

TRUCKS FAIL TO STIR INTEREST

Chicago-Detroit Stunt Given Scant Notice
Even by Hearst's Own Paper—Few
Clean Scores Remain.

Of the fleet of 26 motor trucks which started from Chicago on Tuesday, 8th inst., en route to Detroit and return on the reliability run sponsored by Hearst's Chicago American, but eight survived to the sixth day with perfect scores; one of them, the No. 9 Poss, was withdrawn on the morning of the fourth day after a series of mishaps that cost it 376 points and the other 17 rolled up penalties varying from four to

Ind., 94.7 miles—9-Poss, 192 points, repairing cracked water jacket caused by pouring cold water in radiator when motor was overheated and work on spark plugs; 37-Van Dyke, 11 points, stopped motor to let it cool; 34-Chase, four points, stopped motor to let it cool; 39-Ideal, 10 points, cleaning spark plugs; 16-Kelly, eight points, cleaning spark plugs; 14-Dayton, one point, stalling motor; 4-Gramm, eight points, cleaning spark plugs; 27-Kirkworth, 40 points, repairing magneto and plugs.

Second day—South Bend to Ft. Wayne, 77.3 miles—9-Poss, 142 points, changing spark plugs, stalling motor, tightening magneto bolts and late at control; 37-Van Dyke, 19 points, overheated and stopping motor; 1-Gramm, 1,828 points, work on car-

shift lever; 36-Stevenson, five points, trouble in starting motor after checking out time; 14-Dayton, 13 points, stalling motor which stopped because of no gasoline; 31-Little Giant, six points, replacing spark plug, putting on driving chain that had slipped off and adjusting transmission.

The second day's run of 77 miles from South Bend to Fort Wayne, the former Indiana city having been reached on the first day on schedule time and with but few penalizations, was over only fair roads and as a result not a few of the trucks got into trouble of one kind or another, the biggest penalization of the day falling to the No. 1 Gramm which scored 1,828 points for work which was done on its carburetter and magneto.

From Fort Wayne to Lima, which constituted the third day's run was shorter by 14 miles and but four of the cars were penalized, three of them, No. 31 Little Giant, No. 38 Clark and No. 2 Gramm, being first offenders. They got four, 136 and four points respectively, the Little Giant for changing spark plugs, the Clark for work on magneto and plugs and the Gramm for replacing nuts on spring clips. The roads were slightly better than they were on the previous day though some little apprehension was caused by the apparently weak bridges which it was necessary to cross.

Fifteen miles out of Lima on the fourth day's run to Toledo, a distance of 82.8 miles, the Poss entry was withdrawn, leaving 25 of the 26 original starters still in the going. No more clean scores were spoiled during the day though the Little Giant again got into trouble, 20 points being charged for adjusting the coil vibrators and the Dayton was charged four points for work done on a leaky gasoline pipe. The roads which were encountered between Lima and Toledo were the best that had been traversed and some of the trucks made record time, not a few of them getting into control by noon and all of them completing the distance by six o'clock, when the time limit expired.

In Detroit, which was reached a little after noon on the fifth day, the contestants were met by a delegation from the Wolverine Automobile Club. But two trucks received additional penalties on the comparatively short jump of 59 miles and the following showed clean slates at the half-way mark: 10-Buick, 11-Buick, 30-Owoso, 20-Lauth Jurgens, 23-Le Moon, 6-Hewitt, 36-Stevenson, 32-Federal, 13-Mais, 24-Lincoln and 17-Kelly.

During the sixth day, which really was the seventh, as the whole of Sunday was spent in Detroit, three more clean scores were soiled, the 73 miles run from Detroit to Jackson proving so universally fruitful of penalties that seven scores were altered. The No. 24 Lincoln, the Lauth Jurgens and the Stevenson were the perfect score trucks which were set back and they received four, 22 and five points respectively, one for tardiness, the others for adjustments.



THE CONTESTING TRUCKS PARKED IN DETROIT

1,828 points, the big mark going to the No. 1 Gramm and the small one to the No. 24 Lincoln.

The run of 65.9 miles between Jackson and Kalamazoo, which was made on Tuesday, the seventh day of the run, was practically uneventful, all of the trucks reaching the checking in place on time. From Kalamazoo to South Bend, 68.7 miles, likewise was devoid of interest, the fairly good roads encountered contributing little to the list of penalizations. Today (Thursday), the last leg of the run, from South Bend to Chicago, a distance of 96.7 miles, will be essayed, and the contest will be finished at the Windy City tonight.

The contest scarcely may be said to be setting the country on fire; little if any was caused by the entry of the trucks into Detroit, or for that matter into any other city or town. Even in Chicago, where the run had its inception, little enthusiasm is apparent, and the newspaper which ostensibly has the contest in hand has devoted very little attention or space to it.

The score at the end of the sixth day is as follows:

First day—Chicago, Ill., to South Bend,

buretter and magneto, and late at control; 14-Dayton, four points, repairing fan belt; 33-Chase, six points, changing and repairing spark plugs; 5-Modern, 34 points, repairing broken fan belt.

Third day—Ft. Wayne to Lima, O., 63.3 miles—9-Poss, 142 points, replacing spark plug, repairing throttle control lever and late at control; 38-Clark, 136 points, work on magneto and plugs; 2-Gramm, four points, replacing nuts on spring clips; 31-Little Giant, four points, changing spark plug.

Fourth day—Lima to Toledo, 82.8 miles—9-Poss withdrawn; 14-Dayton, four points, repairing leaky gasoline connection; 31-Little Giant, 20 points, adjusting vibrators on ignition coil.

Fifth day—Toledo to Detroit, Mich., 59.2 miles—39-Ideal, four points, adjusting carburetter control rod; 31-Little Giant, two points, replacing spark plug.

Sixth day—Detroit to Jackson, 73.9 miles—24-Lincoln, four points, replacing fan belt; 37-Van Dyke, 27 points, stalling motor and late at control; 20-Lauth Jurgens, six points, replacing manegto control connection; 30-Owoso, 22 points, work on gear

CORBINS RETAIN CHARACTERISTICS

One Model Eliminated, But Others Afford
Seven Selections—Refinement of
Details Constitute Changes.

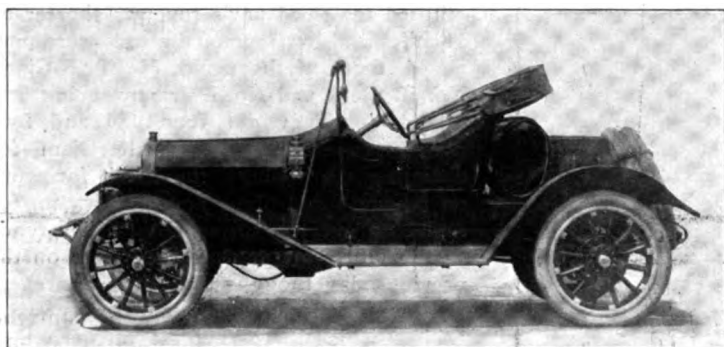
In making known the details of the Corbin cars which are to be produced for the 1912 demand the Corbin Motor Vehicle Corporation, of New Britain, Conn., indicates a continuance of its well-tried policy of building according to the approved principles and trusting to the merits of stable design rather than to seek the market which follows the illusive trail of sheer novelty. As a subsidiary of the giant

power touring car, which in many respects would seem to be the best appealing member of the line, and which is listed at \$3,000, is sold fully equipped, even to the top with curtains and boot, adjustable rain vision windshield, Warner speedometer, magneto, storage batteries, tire holders, headlights and Prest-O-Lite gas tank, combination oil and electric side and tail lamps, Firestone "Q. D." demountable rims and truck rack—the latter being an addition to the equipment of the present model 40.

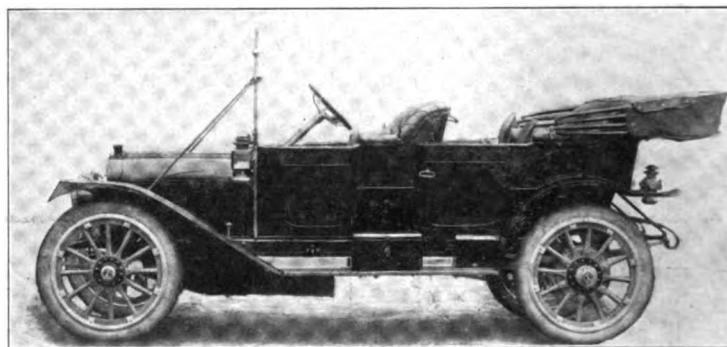
The 30 seven-passenger touring car selling for \$3,050, the four-passenger small tonneau, which is listed at \$3,000, and the \$3,100 topedo complete the offerings which are produced in the larger model. In addition to the 30 roadster already mentioned

shaft bearings through a passageway that is cored out of the upper section of the crank case. From the bearings a certain proportion of the oil finds its way to the connecting rod bearings through the passages in the crank shaft, while the overflow from the "big ends" of the rods is thrown out by centrifugal force in the form of a spray, which is distributed over the cylinder and other surfaces that require oil. The surplus lubricant drains back into the base, to be re-circulated by the pump.

The cylinders, which are cast in pairs, are of T-head formation and are provided with ample cooling areas. The crank shaft journals are two inches in diameter and are mounted in plain bearings of unusual length. A well-designed base casting forms



CORBIN 30 NEW TWO-PASSENGER ROADSTER



CORBIN 40 SEVEN-PASSENGER TOURING CAR

American Hardware Co., and one of the older concerns engaged in the automobile business, Corbin methods and Corbin cars long have been known because of the quiet but persistent efforts that have been back of them. But two models are to be produced henceforth instead of the three which now are current; the model 18, which is really a combination of certain features of both of the other models that have been produced, being abandoned in favor of the two more distinctive types. These are models 30 and 40, the numerical designations also expressing the horsepower output of the two respective chassis.

Furthermore it is noteworthy that both types practically are to be reproduced, only such minor alterations being introduced as actual service in the field have indicated as likely to bring out definite improvement in the way of serviceability. At the same time a conservative multiplication of types through the adaption of various bodies to the two chassis enables the company to produce seven different vehicles ranging in price from \$2,000 to \$4,000. Among these is included the new two-passenger model 30 roadster, which is a neat and attractive enclosed vehicle on semi-torpedo lines, which has a large gasoline tank mounted on the deck behind the seat, a spacious trunk and spare tire carrier. Outfitted with magneto, tools, head, side and tail lamps, it sells for \$2,000. At the other end of the line is the model 40 limousine, which sells for \$4,000. The five-passenger 40 horse-

power touring car which also sells for \$2,000 including equipment.

The smaller of the two models has a 115-inch wheel base and is equipped with 34x4-inch tires. It is fitted with a four-cylinder vertical motor with cylinders of 4½x4¼-inches dimensions. The valves are placed side by side and operated from a single cam shaft. The entire cam shaft assembled is distinctive in that it is housed in a separate compartment of the crank case and is arranged so that it can be detached bodily if necessary. The crank shaft is mounted on three plain intermediate bearings and two F & S annular ball end bearings. A peculiar feature of the construction is the placing of the lower halves of the three inner bearings in the lower section of the case which serves also as the oil basin, while the end bearings only are supported from above, thus serving to retain the shaft in position when the lower section is removed for purposes of repair or adjustment. Selective three-speed gear-set, shaft drive and semi-floating axle construction complete the transmission, the master clutch which controls the power being of leather-faced cone type.

The 40 model has a 4¾x5½-inch motor, 120-inch wheel base and 36x4-inch tires. The engine is distinguished by a constant-flow lubricating system in which the splashing of oil by the cranks is entirely done away with. A gear pump serves to raise the lubricant from the engine base and causes it to be distributed to the main crank

shaft bearings through a passageway that is cored out of the upper section of the crank case and serves to support the two cam shafts as well as the engine auxiliaries, namely the magneto, circulating pump and carburetter. The timer of the double ignition system is mounted at the top of a vertical shaft which is conveniently located between the two cylinder groups.

A leather-faced cone clutch, three-speed selective change gear mechanism, shaft drive and full floating rear axle, are other features of the power plant and transmission systems. The axle, it should be added, is of exclusive design, consisting of two pressed steel vertical sections, which are united by the autogenous welding process to form a single and practically monometallic structure. The differential and driving gears are supported on a semi-steel casting which affords them rigid support and which also has the merit of permitting the entire group to be withdrawn from the housing without disturbing the adjustment of the gears.

"Auto Trucking" Performed by Horses.

Of many curious anomalies to be found in New York none are more curious or befuddling than horse-drawn trucks bearing the sign "Auto Trucking Co." The apparently inexplicable contradiction is made clear only when the trucks happen to be loaded with new motor cars which the company makes a specialty of transporting to and from railroad freight depots and steamship piers.

TESTS THAT INFLUENCE BUYERS

Unusual Demonstrations Required When Business Vehicles Are in View—Chicago Stunt for "Trouble Wagon."

When a pleasure car is in view the prospective purchaser usually is content with a test of its hill-climbing capacity, but when a business vehicle is concerned buyers are prone to require unusual demonstrations to decide their choice before placing an order. This is particularly noticeable when they are seeking a vehicle to be used as a "trouble-wagon," that is, one designed to be sent out to tow in other

gers, which gave the Abbott-Detroit the necessary grip on the ground, he performed the feat and for good measure the truck was towed around the block to the garage. As a result the Abbott-Detroit has been added to the fleet of motor cars maintained by the Chicago merchants.

Extent of the Australian Market.

Imports of automobiles into Australia have increased by leaps and bounds during the past few years, no less than \$3,951,245 worth of chassis and bodies having been shipped to the Island Continent during 1910. Of this amount \$3,471,230 represented the value of the chassis, while the bodies were valued at \$480,015. The United States supplied \$436,350 in chassis and complete cars,

"REGULATION" THAT WOULD RUIN

Investigation of London Taxicab Conditions Results in Report Favorable to Drivers—Owners Fear Outcome.

Preliminary steps looking toward the re-adjustment of London taxicab conditions on the basis of government control are not favorably regarded by the operators. A special departmental committee which has made a painstaking investigation of the situation has handed up to the Home Secretary a series of nine recommendations which largely favor the cause of the chauffeurs. The Home Secretary, however, has no power to enforce the recommendations, nor is it likely that the operators will be particularly prompt in adopting the suggestions. That the findings of the committee may form the basis of future legislation, however, is causing some apprehension among cab owners.

The recommendations, briefly, are to the following effect: That the tariff remain unchanged; that all "extras" be taken by the drivers; that the drivers' proportion of the earnings be 20 per cent. of the first pound and 25 per cent. of all amounts in excess of one pound; that the necessary gasoline be supplied to drivers by the owners at a fixed rate of eight pence, or about 16 cents a gallon, regardless of fluctuations in the market; that there be no limitations on the total numbers of cabs or drivers licensed; that special licenses be required for distant suburbs; that the motor tax of £2 2s, or about \$10.50, be abolished or reduced; that one form of standard license be employed for drivers, and that the present license qualifications be maintained.

The investigations of the committee, which was composed of Sir Archibald Williamson, Bart., Sir Clarendon Hyde and Col. Edwards, C. B., have embraced a thorough study of London's entire traffic problem and have taken into account the probable competitive influences existing between the cabs and the "tube" and tram traffic. The endorsement of the present rate of minimum fare, 16 cents for the first half mile or fraction, has been made in the face of a vigorous protest on the part of cab owners and traction experts to the effect that it should be raised to ten pence, or 20 cents; while the operators' attempt to secure effective regulation of the common practice of overcharging and purloining extra charges on the part of the chauffeurs has been met with the plan of turning all extras over to the men. The committee even goes the length of expressing the conviction that the police should not be "charged with the duty of debt collecting." Thereby, the owners believe, what small chance of protection from unscrupulous drivers the public now has would be removed.



TRUCK-HAULING TEST THAT EFFECTED A SALE

trucks which have met with mechanical mishap, or render assistance to other "lame ducks," and not unfrequently the decision hinges on a feat which never is likely to occur in the service in view. As an instance, the head of the purchasing department of Marshall Field & Co., Chicago, Ill., recently let it be known that he was in the market for a "trouble wagon," he specified that it must be capable of towing a five-ton truck up a rough 10 per cent. grade in the railway freight yards of that city, which itself is as level as a table. The grade selected is about 200 feet long and made rough by deep ruts. A. H. Sackett, sales manager of the Centaur Motor Co., Chicago agent for the Abbott-Detroit, accepted the conditions and with an Abbott-Detroit "30" made the test.

Three trials were necessary, the first two failures being due to the fact that the car could not get traction in the ruts, but when Sackett loaded the car with passen-

and \$59,530 in separate bodies. The total imports of chassis were distributed over the various countries as follows:

Imported from	Value.	Per Cent. of Total.
United Kingdom	\$1,732,415	49.0
Canada	241,440	7.1
Belgium	132,870	3.9
France	684,975	19.6
Germany	94,985	2.9
Italy	143,275	5.1
United States	436,350	12.3
Other Countries	4,920	0.1
Total	\$3,471,230	100.0

Heating the Hard Rubber Bushing.

Hard rubber bushings, such as frequently are employed as guides for insulated ignition wires, can be fitted to or removed from their sockets with little difficulty if slightly heated. Besides being slightly pliable when warmed, it will be found that they are less brittle than when cold and not so apt to crack if forced into a tight fit.

Another point in which the owners failed to receive the expected support of the committee, is that of regulating the drivers' working hours. Instead of taking the view that the men ought to be encouraged to work seven days a week instead of only five, as many of them now do, the committee advances the opinion that the operators should be able to get more men to fill their places during the "off" days. On this point, as well as another contention of the owners, namely, that there are now more cabs in service than the business justifies, the report expresses an attitude which, to the owners, has proved most exasperating. Says the report in this connection:

"Allowing that the driver spends say four hours in actual fare-driving, two or three hours for waste 'crawling' mileage, and the large amount of time, apparently about four hours, necessarily wasted by waiting on the ranks, and for fares, the aggregate does not, the owners contend, constitute a specially hard day's work, nor does it involve a great strain, the health of the cabmen being as a rule excellent.

"If the average driver finds that five days work a week or less enables him to earn sufficient for his needs, then the committee sees no reason to insist upon any obligation on his part to work on the sixth, but on the other hand a substitute must be found if the cab is to do its proper share of work.

"On the question of tips, there was some difficulty in obtaining accurate information. On the part of the owners there was necessarily ignorance, except in the case of owner-drivers, and on the part of the men there was naturally reticence as to their own receipts. The committee found the drivers more willing to discuss the average of drivers' tips generally than to give precise details of their own.

"The position of the proprietors is that they make no claim to the tips, and are glad that the men receive them.

"It appears to the committee that tips may be fairly computed at three shillings (75 cents) per day, apart from the extras. They are unable to look upon them merely as the gifts of a grateful and admiring public.

"If the supply of cabs is, as the men contend, in excess of the requirements of London, the truth of this will soon be manifest to those concerned."

Adjusting Driving Gear of Magneto.

When removing or adjusting the nut which holds the driving gear of a magneto in place, that gear always should be engaged with the pinion from which ordinarily it derives its motion. Otherwise it will be necessary to clamp the armature in some way to prevent its rotation, which is rather a difficult thing to accomplish satisfactorily. The chauffeurs' method, which is to wedge a screwdriver between the armature windings and one of the pole-pieces, is particularly objectionable for the reason

that it is liable to damage the windings seriously, if not to bruise the pole-piece itself, thereby affecting its efficiency as a conductor of the magnetic flux.

Warner Auto-Meter Made More Useful.

Without changing the general appearance of the Auto-Meter, except for the addition of a small knurled knob, the Warner Instrument Co., Beloit, Wis., has made an improvement in that important accessory which obviates the necessity for a considerable amount of the mental arithmetic which usually is indulged in by motorists. As shown in the accompanying illustration, the improvement comprises the addition of an extra reset to be used in conjunction with the regular trip reset mechanism,



the latter being used to turn back all four figures of the trip odometer at once and the former resetting only two of the figures, the miles and the tenths.

The new device is intended as a material help to those motorists who tour by book, many of whom prefer to deviate slightly from the printed instruction. Heretofore such deviations have necessitated more or less computation at each change of direction as given by the route card by reason of the extra mileage shown by the odometer. If, with the new Warner Auto-Meter the trip scale shows 48.6 miles and it is desired to turn it back to 35.8 miles, for instance, the regular reset is used to turn the figures to read 333.3. By means of the extra reset, the miles and tenths then are turned forward till the dial shows 335.8, the first figure naturally being ignored. Another improvement which also is shown in the illustration is the outside winding and setting arrangement for the clock. The speed indicating mechanism of the instrument remains the same as when it was put on the market eight years ago.

Blotting Paper for Testing Oils.

Along with the "millionth" patent comes the 999,999th "simple" method of testing lubricating oil. Contrary to some of the preceding methods of alleged simplicity which have required a complete edu-

cation in practical chemistry and a complete laboratory equipment for their application, method No. 999,999 requires no more elaborate equipment than a piece of white blotting paper and a steam jet. The test, which is credited to an English authority, is as follows:

Place a drop of known oil and a drop of the lubricant to be tested side by side on the blotting paper, letting the steam play on the paper. The oil which penetrates the blotting paper quickest and spreads widest over it is always the poorest and thinnest oil, as it shows by its lightness and the quick disappearance of its outer ring that it is compounded from products of very light specific gravity. If, on it being exposed longer to steam, the oil on the paper disappears entirely, the sample is composed of petroleum oil. If the oil under examination be compounded from petroleum, with an addition of lard or other fatty matter, the blotting paper will retain its translucency in the center long after the petroleum, which at first spreads rapidly over and through the paper, has disappeared.

Petroleum penetrates blotting paper faster than fatty oils do, and also spreads wider over the paper at first, but it dries off rapidly and the translucency disappears while that of the fatty oils remains. Some of the fixed or fatty oils turn rancid and when this occurs the fatty acids are set free and act detrimentally to metals. A simple test for free fatty acids in oils is to pour a small quantity of the suspected samples into a test tube with some fresh brass shavings; if the oil turns green, it is a sign of free acids in the sample of oil.

First Arrest for "Inquisitiveness."

Philadelphia, which does unusual things occasionally, has made "inquisitiveness," whatever that may be in legal parlance, an offense, and Filippo Steartori, an Italian street cleaner, has the distinction of being the first victim. A disabled automobile with a leaking gasoline tank caused the inquisitiveness which led to his arrest. The automobile belonged to George Fox, of Logan, Pa., who was endeavoring to locate motor trouble when Steartori "got busy" and reduced the touring car to a few damaged fragments of mechanism. The member of the "white-wings" force crawled beneath the car on a tour of investigation with a lighted match, and the pyrotechnical display which followed caused much excitement and brought out the fire department. Strange to say, although he thought an earthquake struck him, the broom wielder was uninjured. After being rescued from beneath the debris he was arrested upon complaint of the owner. When taken to the station house the police were puzzled as to what charge should be made. Suggestions ranging from arson to Black Hand work were discussed until finally the unique idea of "inquisitiveness" dawned upon one of them, and for the first time that charge was put upon the blotter.



992,796. Armored Tire. George D. Moore and Ralph L. Morgan, Worcester, Mass. Filed Oct. 16, 1909. Serial No. 522,973.

1. As an article of manufacture, a vehicle tire or outer shoe comprising a body composed mainly of flexible soft rubber, a plurality of rigid inserts composed of hard rubber vulcanized to the soft rubber and located at intervals along the wearing surface or tread thereof, and sheet metal members extending along the outer surfaces of the hard rubber inserts, said sheet metal members extending at opposite sides inwardly with respect to the tire and insert and in contact with the material of the inserts, whereby they are firmly secured together.

992,897. Ball Bearing Screw. Winfield S. Nichols, Newark, and James H. George, Harrison, N. J., assignors of one-third to said Winfield S. Nichols, one-third to said James H. George, and one-third to Herbert J. Skipp, Newark, N. J. Filed June 22, 1910. Serial No. 568,289.

1. As a new mechanical element, a non-friction screw and nut comprising, a screw-shank provided with screw-threads, a nut-portion adapted to receive said screw-threads of said screw-shank, said nut-portion comprising a main body-member provided with an internal semi-circular spiral groove and a vertical tubular opening providing a return-passage, said main body-member being provided with a hole or passage connecting said spiral groove with the lower end of said vertical tubular opening, a stop-pin secured to said main body-member, the inner end of which projects into said spiral groove adjacent to said hole or passage, a top retaining plate provided with means for connecting the upper end of said tubular opening with said spiral groove, a bottom retaining plate provided with a guide-pin adapted to enter the lower portion of said tubular opening, and a plurality of anti-friction balls seated in said spiral groove and capable of a rolling or traveling movement in said spiral groove, said anti-friction balls being adapted to engage said screw-threads of said screw-shank and form the bearings therefore, substantially as and for the purposes set forth.

992,920. Auxiliary Starting Device for Internal Combustion Engines. Wentworth Steele, St. Louis, Mo. Filed Nov. 25, 1907. Serial No. 403,639.

An auxiliary engine-starting device, comprising a branch pipe leading from the pipe which supplies liquid hydrocarbon to the carburettor to the intake pipe of the engine, a pump located in the first mentioned pipe, valves located in said pipe adjacent the pump, the screw-plug on one end of said branch pipe, a locking-plate at the end of said screw-plug, the intake pipe having an aperture through which the said locking plate is inserted within the intake pipe, and the nut threaded upon the screw-plug exterior of said intake-pipe, all arranged for detachably clamping said screw-plug within said aperture of the intake pipe, in combination with the curved and perforated pipe section within said intake pipe.

992,940. Safety Robe Back. Donald I. Burton, Asbury Park, N. J. Filed April 21, 1910. Serial No. 556,845.

1. A rack of the character described, comprising spaced standards formed at their ends with angularly disposed brackets by which they may be connected to a support, upper and lower movable bars extending in parallel relation to each other from one standard to the other, sleeves connected to one end of the respective bars and arranged to slide on the standards, and spring latches carried by the sleeves, the standards being formed with notches for engagement by said latches.

992,949. Annular Roller Bearing. Samuel S. Eveland, Philadelphia, Pa., assignor to Standard Roller Bearing Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Aug. 5, 1908. Serial No. 447,037.

An annular roller bearing comprising an inner ring provided with a conical roller surface and at one edge with an outwardly projecting flange having an outwardly beveled abutment or working side, an outer ring concentric with the inner ring and provided internally with a conical roller race surface, conical rollers arranged between the races and having their larger ends chamfered to conform to and ride on the outwardly beveled working side of the flange, and a cage consisting of connecting rods and of large and small conical rings each having confronting projections provided with conical side walls constituting roller pockets and the larger end ring being internally cut away or rabbeted to expose the larger ends of the rollers and receive the flange on the inner cone.

992,967. Driving Gear for Motor Vehicles. Harry Edgar Lever, Johannesburg,

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Transvaal. Filed Jan. 5, 1910. Serial No. 536,583.

1. In a driving gear for motor vehicles, in combination, a main transmitting shaft and a secondary transmitting shaft axially alined with said main transmitting shaft, a gear fixed to the main transmitting shaft a further gear fixed on said main transmitting shaft, the latter gear having a conical recess eccentric to both shafts, a clutch member slidably arranged on the secondary transmitting shaft, said clutch member having a conical projection or boss eccentric to both shafts and adapted to clutch the secondary transmitting shaft to the main transmitting shaft through the second gear, a gear fixed on the secondary transmitting shaft, three other shafts arranged parallel with the main and secondary transmitting shafts, a gear loosely mounted on one of said shafts, said gear meshing with the gear fixed to main transmitting shaft, a further gear loosely mounted on shaft, one of the three last mentioned shafts, said further gear meshing with the gear on main transmitting shaft, the gears having conical opposing recesses eccentric to the shaft, a clutch member slidably arranged on the shaft between the gears, said clutch member having conical projections or bosses eccentric to the shaft and adapted to clutch either of the gears to shaft, a further gear fixed on the shaft and meshing with a gear on secondary transmitting shaft, a gear loosely mounted on shaft, the second of the three parallel shafts, said gear meshing with the gear fixed on the main transmitting shaft, said gear having a conical recess eccentric to its shaft, a clutch member slidably arranged on the shaft, said clutch member having a conical projection or boss eccentric to the shaft and adapted to clutch said gear to the shaft, a further gear fixed on the shaft, a gear on the idler shaft, said gear meshing with a gear on the second parallel shaft and a gear on the secondary transmitting shaft, as set forth.

993,007. Clutch. Harvey J. Wells, Peru, Ind. Filed July 16, 1910. Serial No. 572,300.

1. The combination with a driving casing and a driven shaft extending into the casing, of clutch members mounted within the casing, an expansible element for shifting said members into frictional engagement, a housing revoluble with the casing and movable axially relative thereto, means slidably mounted on the shaft for expanding said element and connected to said housing for axial movement therewith, and springs adjacent the housing and normally bearing thereagainst to hold said housing normally in a predetermined position.

993,043. Vehicle Wheel. George W. Dudley, Staunton, Va., assignor of one-fourth to James W. Sheets, Jr., Staunton, Va. Filed Dec. 24, 1910. Serial No. 599,219.

1. In a device of the character described, the combination with an axle, of a wheel mounted thereon embodying a sectional hub disposed upon opposite sides of the wheel proper, said wheel proper being radially movable between the hub sections when subjected to abnormal pressure, each of said hub sections having a longitudinal annular chamber therein, an annulus movably arranged in each of said chambers, resilient rings arranged in the chamber of each hub section and acting to force the annulus therein into engagement with the wheel proper to yieldingly sustain the same in concentric relation to the wheel axle, a circular plate in each of the hub chambers, and adjusting screws to force said plates against the resilient rings to regulate the pressure thereof upon the annuli carried by

the hub sections in accordance with the load carried by the vehicle.

993,079. Transmission Gear. Charles M. Leech, Lima, Ohio. Filed April 30, 1910. Serial No. 558,550.

1. In an apparatus of the character described, a driving shaft, a disk, a plurality of driven shafts arranged in end to end relation to each other, means for imparting rotation from the driving shaft to one of the driven shafts, means for imparting rotation from one of the driven shafts to the other driven shaft, a clutch device slidably mounted upon one of the driven shafts and provided with means to rotate said disk, a gear loosely mounted upon the last named driven shaft to rotate said disk at a different speed, said clutch device serving to lock said gear to its shaft, and a gear mounted upon the other driven shaft to rotate said disk in an opposite direction.

993,088. Vehicle Wheel. James Garrow McAlpine, Gilroy, Cal. Filed July 27, 1909. Serial No. 509,879.

A wheel having a hub, a felly, a rim removably mounted on the felly, felly-holding spokes with their outer ends engaging and extending into the felly and with their inner ends extending into the hub and provided on one side with helical grooves, rim-holding spokes with their outer ends extending through the felly and into the rim and with their inner ends extending into the hub and provided with helical grooves on the side opposite from the grooves in the felly-holding spokes, a plate rotatable on the hub and against the inner ends of the spokes on each side, one of said plates having helical threads fitting the corresponding helical grooves in the felly-holding spokes and the other end of said plates having helical threads fitting the corresponding helical grooves in the rim-holding spokes, and means for clamping the plates in position on the hub and against the inner ends of the spokes.

993,092. Spring Wheel. Francis J. Millea, Springfield, Mass., assignor of one-half to himself, one-fourth to John E. Stannard, and one-fourth to George W. D. Upton. Filed Oct. 20, 1909. Serial No. 523,671.

1. In a spring wheel, a recessed hub having a plurality of lugs, the recesses in such hub each being bowed, a rim provided with inwardly-projecting members, a plurality of pairs of spring units arranged so that each pair assumes an approximately heart-shaped outline or configuration, means comprising binding blocks receivable in said recesses and bolts tapped into said lugs to engage said blocks to secure the inner terminal portions of said units in said recesses, and means to attach the outer terminal portions of said units to said inwardly projecting members.

993,159. Leather Tire. Raymond J. Elledge, Los Angeles, Cal. Filed Aug. 19, 1907, Serial No. 389,300. Renewed May 16, 1910. Serial No. 561,769.

The combination of a flanged tire having an annular groove around its tread formed with a convex bottom and curved side walls diverging outwardly from the top to the bottom of the groove, of a series of tread pieces arranged side by side therein transversely of the groove and having their end and bottom edges corresponding with the side walls and bottom respectively of the groove, whereby said pieces are caused to fit said groove and fill the same, wires through said pieces circumferentially of the wheel, one near each end thereof, and bolts through said pieces transversely of the

wheel and through said flanges, said bolts being between the bottom of the grooves and said wires.

993,210. Carburetter. Arthur J. Weiss, West Orange, N. J., assignor to Edward A. McCoy, East Orange, N. J. Filed July 19, 1910. Serial No. 572,731.

1. In a carburetter, a throttle valve, a fuel supply channel, a valve therefor, said valve comprising suction-actuated means, a passage leading from said suction-actuated means to the opposite side of said throttle valve, and a check valve in said passage.

993,222. Tire Tread. Nahum Judson Busby, Boston, Mass. Filed Apr. 15, 1910. Serial No. 555,659.

An integral tire, comprising a main or body portion formed of an admixture of a quartz like substance and rubber, and a base composed wholly of rubber, said portions merged in a homogeneous body without a definite line of demarcation.

993,233. Horn for Cycles, Motor Cars, and the Like. Albert Henri Feugueur, Paris, France. Filed Sept. 29, 1910. Serial No. 584,561.

1. A warning horn comprising in combination a bulb, an air distributing valve connected therewith, a casing for the said valve, a series of cornets attached to the said casing and adapted to be brought successively into connection with the bulb by the rotation of the said bulb and valve.

993,236. Vehicle Spring. Will Friedrichsen, Miles, Iowa. Filed an. 18, 1911. Serial No. 603,327.

1. An elliptic spring comprising complementary sections provided at their ends with pairs of ears which are transversely apertured, the ears of one of the sections fitting snugly between the ears of the other section, a fastening pivotally connecting the sections by passing through the registering openings of the ears thereof, and a roller mounted upon said fastening, said roller being spaced from the adjacent side of the lower section and obtaining a bearing against the adjacent side of the upper section of the spring.

993,287. Vehicle Cushioning Device. Percy E. Barker, Buffalo, N. Y., assignor to Burnette F. Stephenson, Detroit, Mich. Filed Aug. 10, 1910. Serial No. 576,542.

1. The combination with a vehicle body and its axles of a cushioning device comprising gear segment disks rotatably mounted on said vehicle body, a gear pinion rotatably mounted between, and meshing with said disks, and rods pivotally mounted at their upper ends on said disks and at their lower ends on one of said vehicle axles.

993,332. Vehicle Wheel. Arthur W. Abernathy, Champaign, Ill. Filed Sept. 26, 1910. Serial No. 583,791.

A vehicle wheel of the class described comprising an outer rim provided in its inner edge with a continuous circumferential channel provided in its inner walls with oppositely disposed radial recesses, a continuous series of coil springs mounted in the channel of the rim and projecting into the recesses above mentioned, a solid outer tire for the rim, a bearing ring, provided in its outer periphery with a plurality of inwardly extending slots, said ring extending into the channel of the rim and bearing against said springs, and pins passing through the outer rim and the slots of the bearing ring to prevent the bearing ring from creeping on the outer rim when the wheel is in motion.

THE MOTOR WORLD

Vol. XXVIII.

New York, U. S. A., Thursday, August 24, 1911.

No. 9

SOLID TIRE STANDARDS TO RULE

Society of Automobile Engineers Promulgates Dimension Specifications—Meeting Ready Acceptance.

Convinced of the soundness and practicality of the standard tire and wheel dimensions for demountable and non-demountable solid motor tires that were passed last spring, the Society of Automobile Engineers has now come out in public espousal of them, and is receiving ample encouragement to entertain the view that they will be generally accepted in the trade. The specifications standardize the use of a permanent steel band over the wood wheel and stipulate the dimensions of the band and felloe for a given nominal diameter sectional size of tire, as well as tolerance or allowable variation from exact size. Standard flange dimensions and standard bolt sizes and bolting spacings are now being considered and will be fixed as soon as possible.

When the results of the work of the committee having the matter in hand were made known last May there were objections raised in some quarters that the suggested standards would not prove wholly satisfactory, particularly in the matter of tolerance. It was indicated by the maker of a metal base tire that the tolerance allowed by the S. A. E. specifications was greater than need be and would interfere with the satisfactory application of his product. On the other hand, the rim makers stated that to produce rims to closer limits than those allowed— $1/16$ inch plus and minus on the exact circumference of the band—it would be necessary to resort to double rolling, against which the wheel makers would raise strong objection. The makers of steel wheels, which are being taken up by some truck manufacturers, also are in favor of the tolerance allowed by the specifications.

Assurances have been given the Society

that the standards which it is officially promulgating are both satisfactory and welcome, and already a number of the largest makers of trucks have taken steps to put the standards into effect on their trucks by the first of next year. Accordingly the wheel makers are adopting or are preparing to adopt the standards, and the tire manufacturers as a whole have not shown any disposition to balk at supplying the sizes that the standards demand. The effect will be to bring about a complete interchangeability between the different makes of solid motor tires. The Society also is taking up work toward bringing about a standardization of the essential dimensions relating to demountable rims for pneumatic tires.

Rajah Brings Suit Against Kreitlein.

Injunction and infringement proceedings have been brought by the Rajah Auto Supply Co., of Bloomfield, N. J., against George F. Kreitlein, of the Dealers' Auto Supply Co., Indianapolis, Ind., in the Federal court in that city. The complaint alleges that Kreitlein is making and offering for sale spark plugs similar to those made by the Rajah company and infringing the latter's patent rights. In addition to the injunction, damages to the extent of \$10,000 are asked for.

Detroit to Have Another Foundry.

Among Detroit's newest companies related to the automobile industry, the Motor Foundry Co. is building in that city a large foundry on Hart avenue and the Detroit terminal. The building is 100 x 180 feet and is to cost about \$18,000. It is to be completed in 30 days. J. A. Gey and J. H. James are moving spirits in the concern, which will specialize in gray iron automobile parts.

Lexington to Enlarge Its Factory.

The Lexington Motor Car Co., of Connersville, Ind., is making arrangements for the building of an addition to its present plant. The new wing is to afford 35,000 square feet additional floor space.

HUPP CORPORATION IN GASOLENE

Will Make the "R. C. H.," Following Hupp's Retirement from Hupmobile—Sales Managers Visit Factory.

Still another gasoline car is to have its home in Detroit, Mich., and the Hupp Corporation, of which Robert C. Hupp is the head, is to make it. The car will be known as the "R. C. H.," a name taken, as will readily appear, from Hupp's initials. This will avoid any confusion of the car with the Hupmobile, made by the Hupp Motor Car Co., of which Hupp until recently was president and general manager, but from which he has withdrawn, following the purchase of his interests by some of the larger stockholders.

The Hupp Corporation, to which Hupp will devote himself, has been making the Hupp-Yeats electric, but by the manufacture of the "R. C. H." will enter the gasoline field as well. The concern already is well developed in the manufacture of gasoline automobile parts and accessories, so that the production of gasoline cars requires but little revolution in the nature of its equipment. The first of its models of the gasoline type will be a runabout in which the extensive use of drop forgings and nickel steel construction will be featured. The motor is of the long stroke type. Complete with lamps, top, windshield and other accessories, it will sell for \$700. Present plans provide for the manufacture of 500 of the cars before the first of the year. Other models are to be developed and added, and it is probable that the company will also take up the manufacture of commercial cars in both electric and gasoline types.

Announcement of the "R. C. H." car was made to the branch sales managers of the Hupp Corporation at their gathering in Detroit on the 21st inst., during their two days' visit at the plants of the corporation in Fairview. Monday's program for the

visitors was chiefly given over to an inspection of the company's various manufacturing departments, including the foundry, the machine department, the drop forging plant, the assembly department and the like. Events concluded with a dinner in the evening at the Pontchartrain, at which the branch managers and various department heads were present, including R. C. Hupp, L. G. Hupp, Harwood M. Bacon, sales manager, and the following branch managers: J. W. McCrea, Detroit; L. A. Root, Minneapolis; E. N. Stinson, Philadelphia; H. D. Haupt, Cleveland; C. H. Batchelor, Chicago; J. O. Harris, Los Angeles; C. E. Christian, Kansas City; R. W. McMullen, Buffalo, and E. W. Swanbrough, Denver.

Hupp's Retirement Advances Hastings.

Charles D. Hastings has been appointed general manager of the Hupp Motor Car Co., of Detroit, Mich., to succeed R. C. Hupp, who has sold his holding to a syndicate of the stockholders and has resigned to devote his entire attention to his other interests. These latter include the Hupp Corporation, of Detroit, which makes the Hupp-Yeats electric cars, and which is to enter the gasoline field. Hastings has been with the Hupp Motor Car Co. as assistant general manager since its inception, and has always been active in its executive affairs, so that Hupp's retirement will in no way affect the plans or policy of the company. He was connected with the Olds company before the Hupmobile came on the market. E. A. Nelson, designer of the Hupmobile, remains at the head of the Hupp Motor Car Co.'s engineering department, and the personnel of officials of the concern remains unchanged, save for Hupp's retirement.

Homo Revived in Philadelphia.

Apparently with the purpose of reviving the Homo device, which when introduced between the carburetter and the engine effects a more thorough mixing of the fuel and air, a new company, styled the Homo Company of America, has been incorporated under Delaware laws, with \$165,000 capital. The concern has its headquarters in Philadelphia, and its incorporators include H. C. Griffiths, W. W. Power, F. L. Houghtaling and E. Leonard. The Homo mixer was formerly made by the Gasoline Motor Efficiency Co., of Jersey City, N. J., which dropped from sight many months ago.

Otto Wants \$100,000 from Mount Holly.

Offers have been made by the Otto Automobile Sales Co., of Philadelphia, Pa., to establish a plant in Mount Holly, N. J., for the manufacture of Otto cars, provided the residents of that place will subscribe for \$100,000 worth of stock in a new \$500,000 corporation that would be formed. Representatives of the company recently addressed a public meeting at Mount Holly on the subject.

Changes Among Prominent Tradesmen.

Al. C. Bergmann has resigned as assistant general manager of the Fiat Automobile Co. He will join the factory organization of Wyckoff, Church & Partridge, Inc., at Kingston, N. Y.

J. C. Donahue has accepted the position of general manager of the Clark Motor Car Co.'s factory in Shelbyville, Ind. He hails from Pittsburgh, Pa., where he has the Donahue Motor Sales Agency, which handles the Clark car.

J. A. Atwell, who for the past two years has been manager of the New York City branch of the Michelin Tire Co., has been appointed manager of the Chicago branch of the Fiat Automobile Co. He assumed his new duties in the Windy City on the 23rd inst.

C. M. Kolbenstetter has become a part of the selling organization of the Stromberg Motor Devices Co., of Chicago, Ill., which manufactures Stromberg carburettors and other motor accessories. For a number of years he has handled cars and carburettors in the Central States.

A. K. McCluny, formerly a traveling representative for the Buick Motor Co., has resigned that position to go with the Westcott Motor Car Co., of Richmond, Ind. As a special district representative of the Westcott company he will control Michigan, Northern Indiana and Northern Ohio.

A. O'Donnell has been appointed manager of the New York office of the Booth Demountable Rim Co., of Cleveland, Ohio, succeeding John F. Paine. After placing several of the Booth company's other branches on a successful basis, O'Donnell has just returned from the West in order to take charge of the Eastern territory.

W. E. Dunston, M. E., becomes general manager of the Ditwiler Mfg. Co., Galion, Ohio, on the 1st of September. For some years he was chief engineer of the Dayton Motor Car Co., and has been an engineer for the Olds Motor Works, Cadillac Motor Car Co. and the Chalmers Motor Co. The Ditwiler company makes the Ditwiler steering gear.

W. F. Melhuish has been placed in charge of the taxicab sales department of the White Company, of Cleveland, Ohio. Until recently he was sales manager of the Croxton-Keeton Co., which built taxicabs exclusively. Later he held a similar position with the Consolidated Motor Car Co., after the Merger of the Croxton and the Royal Tourist companies.

L. L. Halle, who has had a number of years experience in the motor car accessory field, has joined the sales organization of the Lovell-McConnell Mfg. Co., of Newark, N. J. He will cover the Eastern States in the interests of Klaxon warning signals, Conover safe-guards and other of the company's products. R. L. Wilkinson, who has been traveling the Eastern terri-

tory, will take up similar duties for the company in the West.

General shifting in the officers of the Croxton Motor Co., of Cleveland, Ohio, has followed the retirement of H. A. Croxton as president and general manager of the company. J. P. Stoltz, formerly vice-president, has succeeded to the presidency; H. D. Michaelson, former secretary and treasurer, has relinquished the secretaryship to F. H. Smith but still is treasurer; George S. Patterson, formerly a Rambler branch manager, has succeeded W. F. Melhuish as sales manager.

Thomas J. Fay has resigned the editorship of The Automobile to become chief engineer at the plant of Wyckoff, Church & Partridge, Inc., at Kingston, N. Y., which until this month was operated at the W. A. Wood Automobile Mfg. Co. The factory makes the Guy Vaughan pleasure cars and the American editions of the English-designed Commer trucks. Fay will be succeeded by David Beecroft, of the Motor Age department of the Class Journal Co., who will divide his time between the twin publications.

A. S. Clucker and C. L. Hixson have been secured by the Garage Equipment Co., of Milwaukee, Wis., as Eastern and Western representatives, respectively, for the company, in the sale of Milwaukee and Gemco automobile parts and specialties. Clucker will have charge of the Eastern territory, making his headquarters in New York City, where he will open an office after the 1st of October. Hixson will have the territory west of Chicago and east of the Rocky Mountains, with headquarters in Chicago after the first of February.

In the reorganization of the R. L. Morgan Co., of Worcester, Mass., by which it has become the Morgan Motor Truck Co., and is once more in a position to go forward, the changes in the list of officers result in the retirement of Henry E. Whitcomb, of Worcester, his only present interest being that of a stockholder. Whitcomb, and not Ralph L. Morgan, was treasurer and general manager, these offices going respectively to Eben F. Jones and to Harry Unwin, the president of the company. Morgan remains as designer and engineer.

Gets Big Commer and Vaughan Territory.

Northern California sales control of Commer trucks and Guy Vaughan touring cars has been given to the Pioneer Automobile Co., of San Francisco, as the result of a contract executed between that company and the Western branch of Wyckoff, Church & Partridge, Inc., of New York, the manufacturers of the Commer and Vaughan cars. The territory of the Pioneer company includes the whole northern half of the state. Wyckoff, Church & Partridge, Inc., will continue a Western service department with headquarters in San Francisco, under the direction of Charles B. Shanks, the Western manager.

BIG BRANCH PLAN FOR RAMBLER

Boston, New York, Chicago and San Francisco to be Made Strongholds—Sales and Service Buildings.

Erection of large service buildings and the establishment of very complete sales and service facilities in a number of the biggest cities of the country are to form a part of the expanding sales policy of the Thomas B. Jeffery Co., of Kenosha, Wis., in the marketing of Rambler cars in the future. The president of the company, Charles T. Jeffery, has given this phase of the Rambler sales and service organization considerable attention and thought for some time, and as a consequence comprehensive plans for fortifying the company in the more important strategic centers are to be carried out.

The more immediate steps will be a big Rambler building in Boston, on Commonwealth avenue; New York headquarters that will probably be located on Broadway, a building in Chicago that will rival anything of its kind in the country, and sales and service headquarters in San Francisco, to be located at Geary and Mission streets. The Rambler announcement for 1912 has not yet been made to the trade, but something "unusual" is promised.

McCue Moves Everything to Buffalo.

Having recently acquired the big modern plant of the Superior Axle & Forge Co., of Buffalo, N. Y., by consolidation with that company, the McCue Co., of which C. T. McCue is president and general man-

ager, is closing its original plant at Hartford, Conn., where it made automobile axles and forgings, and will centralize all its manufacturing operations at Buffalo. Its factory building in Hartford will be for rent and ready for possession on the 1st of October. Such of the Hartford employees as care to go to Buffalo will be taken along.

Brooks-Latta to Make Commercial.

For the manufacture of light delivery cars, the Brooks-Latta Automobile Manufacturing Co., of St. Louis, Mo., is planning to build a one-story brick factory at Sullivan and Lambdin avenues. The concern is a new one, composed of St. Louis men, and has an experimental shop at 4225 Fairfax avenue. The company is capitalized at \$150,000. Charles E. Brooks is president, Allen T. Latta vice-president, and Charles Latta secretary and treasurer. The vehicle that the company intends building embodies several advanced features, including a sliding valve engine, an improved type of transmission and a new self-starting mechanism.

Meacham Heads Two-Cycle Concern.

T. G. Meacham, head of the New Process Raw Hide Co., Syracuse, N. Y., has been elected president of the Palmer-Moore Co., of Syracuse, and the capitalization of the company has been raised from \$25,000 to \$100,000. The Palmer-Moore Co. is manufacturing a two-cycle engine which is to be made in a form suitable for application to motor trucks. The engine is unusual in several respects, chief of which is that its speed is controlled by varying the size of the ports, while the spark timing and carburettor adjustments remain fixed.

AGENTS CLAMOR FOR 1912 CARS

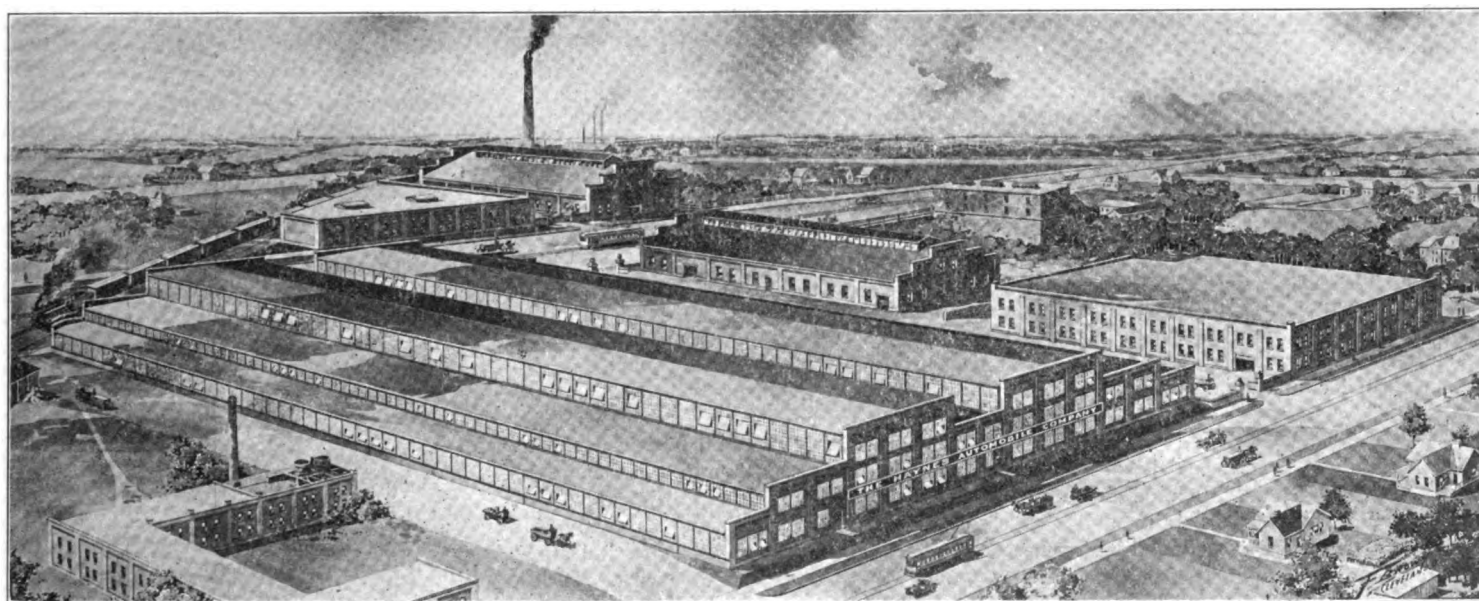
Trade Outlook for Coming Year Makes Overland Hasten Factory Expansion—Bennett Gives Figures.

Proving to his mind a remarkably prosperous outlook for the automobile industry in 1912, orders for the coming year have reached so large an aggregate in the office of George W. Bennett, general sales manager of the Willys-Overland Co., Toledo, Ohio, that the company has hastened to order new automatic machinery, hurry the completion of new buildings and issue an emergency call for additional help, for the manufacture of Overland cars. According to Bennett, 18,000 cars already have been ordered by the company's agents, and it is the expectation, he declares, to sell at least 30,000 cars by the first of September.

"Since my connection with the industry," he says, "I have never seen such a scramble by dealers to secure agencies. The sales force has been literally deluged with orders from all over the country, while many of the agents came to the factory in an effort to secure an allotment even before the 1912 contracts were printed."

Robinson Goes West to Get Goats.

P. R. Robinson, president of the New York Sporting Goods Co., New York City, is on a Western hunting trip, from which he will return about the middle of September. After visiting the Yellowstone, he goes to Wyoming to hunt elk and mountain goats.

SIX MONTHS AFTER—HAYNES'S NEW FACTORY WHICH REPLACES THE ONE DESTROYED BY FIRE

Bird's-eye view of the new plant of the Haynes Automobile Co., at Kokomo, Ind. Last February the former plant was burned to the ground, but, despite rumors to the contrary, the work of production has been continued without interruption. The completion of the new buildings will permit operation to go forward at "full speed."

Quinby Sues Pennsylvania Auto-Motor.

Suit for \$14,349.50, with interest, has been brought against the Pennsylvania Auto-Motor Co., of Bryn Mawr, Pa., by J. M. Quinby & Co., of Newark, N. J., the suit being entered in the prothonotary's office on the 15th inst. The Quinby company builds bodies, but in addition to this it at one time served as a distributor for the Pennsylvania company's cars. In the statement filed it is set forth that the plaintiff contracted to build for the defendant 250 aluminum automobile bodies, which were to cost \$71,000. After a number of the bodies had been built and delivered the defendant wanted changes made, which included the addition of closed-front doors to each body. The bodies then were made according to the defendant's orders, and it is set forth that now the defendant company refuses to accept the full number according to contract. The plaintiff sets forth that because of this refusal it must lose the amount for which suit has been brought.

Will Make Net Fenders for Automobiles.

Scoop-net fenders, while not unknown to trolley cars, have not before been commercially supplied for automobiles, but a newly incorporated concern in New York City, which is to be known as the Automatic Fender Co. of America, is to undertake their exploitation. The fender consists of two nets carried by frames under the forward part of the car, ready for release to scoop up a fallen pedestrian when the driver of the car sees the necessity for doing so. The directors of the new company include William E. McGuirk, manager of the American Taximeter Co.; Gerard J. Kluyskens, manager of Ducasse & Co.; Saul S. Meyers, a New York attorney, and S. S. Weyl. William E. Lowther is one of the incorporators, with McGuirk and Meyers.

Will Make Evans Motors and Cars.

The Automobile Mfg. & Engineering Co., of Detroit, Mich., from modest beginnings has entered on a larger activity and has increased its capitalization to \$50,000. The following officers have been elected: S. F. Lockwood, president; J. P. Gallagher, vice-president; R. H. Evans, secretary, and T. F. Ferguson, director. The concern is at 130 Josephine avenue. Its products for 1912 will be the Evans motor, which is a 32 horsepower two cylinder type, and the Evans Limited commercial car.

McKinney Making Motor Cultivators.

The McKinney Traction Cultivator Co., of St. Louis, Mo., has located its new manufacturing plant at Main and St. George streets, where it is installing complete machinery equipment for the making of McKinney traction cultivators. The factory is 102 x 148 feet, with two floors and a basement. It is situated alongside

the Iron Mountain railroad tracks. Deliveries of the traction cultivators are expected to commence about the first of November.

Lion Concentrates at Adrian Lair.

The Lion Motor Car Co., of Adrian, Mich., has moved its entire sales force from Detroit, giving over its show rooms, garage and offices at 650 Woodward avenue to the Lion "40" Agency, under the management of Harry Postal. S. H. Humphrey, recently appointed factory manager at Adrian, has assumed his new duties, and the advertising department will hereafter be under the management of J. A. Thorson, formerly with the Brush Runabout Co.

Packard Produces a Lighter Truck.

Supplementing the representation it already has in the commercial field with its three-ton truck, the Packard Motor Car Co., of Detroit, Mich., has brought out a lighter and faster model for a normal load of 3,000 pounds. The motor is 26.4 horsepower, A. L. A. M. rating, and the chassis is furnished in two lengths of wheel base, 10 feet and 12 feet, respectively.

Lewis and Bate Sail for Europe.

William Mitchell Lewis, president of the Mitchell Motor Car Co., Racine, Wis., and J. W. Bate, designer and factory manager for the company, sailed this week on the Mauretania in the interests of their European business, which has greatly expanded during the past two years. They will be gone about six weeks.

Opel's Unlucky Factory Fire.

Fire on the night of the 19th inst. destroyed the greater part of the immense plant of Adam Opel, at Russelsheim, on the lower Main, Germany, where Opel automobiles are made, together with bicycles and sewing machines. Two persons perished in the flames. The loss is estimated at about \$1,250,000.

Goggle Glass Duty Reduced.

Plain bent glass pieces for motor goggles are not dutiable at 45 per cent, but can come in at 1½ cents a pound and 5 per cent ad valorem, according to a decision by the Board of United States General Appraisers, at New York. The decision was on appeal by the American Thermo Ware Co., and reverses the 45 per cent decision made originally by Collector Loeb.

Conklin to Acquire Bell Carburetter.

By reorganizing the Bell Carburetter Co., of Aurora, Ill., and changing its name to the Conklin Automatic Carburetter Co., what is practically a new company for Aurora is to be created. The capital stock of the concern is to be increased to \$50,000, and the manufacture of a new carburetter, known as the Conklin automatic, will be undertaken on a large scale.



Flint, Mich.—Mason Motor Co., under Michigan laws, with \$100,000 capital; to manufacture and deal in automobiles.

Spokane, Wash.—Clark Carburetor Co., under Washington laws, with \$200,000 capital; to manufacture carburetters. Corporators—E. H. S. Pope, A. W. Nintz, C. B. Laughlin.

East Orange, N. J.—Motor Truck Sales Co., under New Jersey laws, with \$15,000 capital; to manufacture automobiles and other motor vehicles. Corporators—H. S. Decker, Walter P. Maccabe, M. Zagat.

Chicago, Ill.—Simplex Auto Cranker Co., under Illinois laws, with \$100,000 capital; to manufacture and deal in automobiles and machinery. Corporators—Edwin A. Gardner, Ignatius F. Halton, Willard Patrick.

Columbus, Ohio.—Eastern Automobile Co., under Ohio laws, with \$10,000 capital; to manufacture and deal in automobiles. Corporators—Jacob Goldstein, J. E. Lacey, F. F. Cain, W. C. Adams, Charles Sylcester.

Brooklyn, N. Y.—Mohr Auto Co., under New York laws, with \$25,000 capital; to manufacture automobiles and automobile parts. Corporators—H. Mohr, M. Keve, of Brooklyn; C. Goldstein, of New York City.

Chicago, Ill.—Automobile Construction Co., under Illinois laws, with \$27,000 capital; to manufacture gasoline commercial and pleasure vehicles. Corporators—Harry M. Wells, Albert T. Graham, William E. Fuller.

Paterson, N. J.—Eastside Auto Repair Co., under New Jersey laws, with \$20,000 capital; to construct and repair motor vehicles, engines, etc. Corporators—Veron Ettinger, Matthew Weinstein, Chester C. Boggs, all of Paterson.

Philadelphia, Pa.—Homo Co. of America, under Delaware laws, with \$165,000 capital; to manufacture automobile specialties. Corporators—H. C. Griffiths, W. W. Power, F. L. Houghtaling, of Philadelphia; E. Leonard, of New York City.

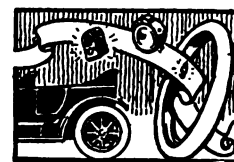
Toledo, Ohio.—The Electric Auto-Lite Co., under Ohio laws, with \$100,000 capital; to manufacture and deal in electric light appliances for automobiles. Corporators—Claud L. Lewis, Sherman L. Kelly, J. A. Barber, O. M. Haynes, P. F. Zeiger.

Increases of Capital.

Chicago, Ill.—Auto Parts Co., from \$50,000 to \$200,000.

Syracuse, N. Y.—Palmer-Moore Co., from \$25,000 to \$100,000.

Aurora, Ill.—Bell Carburetter Co., to \$50,000, and changes name to Conklin Automatic Carburetter Co.



H. T. Haley is building a garage at Macon, Ga. It will be of brick and stone and will cost \$5,000.

Price Brothers have opened a garage on East Main street, Casey, Ill. They will handle the Ford car.

The Baker Garage & Machine Co. has been formed in White Plains, N. Y. Its place of business will be at 6 Central avenue.

The Pioneer Motor Co., of Muskogee, Okla., has found "pioneering" unprofitable and has filed a petition in voluntary bankruptcy.

A fireproof garage to cost \$60,000 is being erected at the corner of Washington street and Hall avenue, Roxbury, Mass. Samuel A. Brown is the owner.

Tire repairing will be featured by the Flatbush Vulcanizing Works, which just has opened a repair shop at 2182 Clarendon Road, Brooklyn, N. Y. M. Weston is the proprietor.

Incorporated under the laws of Michigan, the Creston Auto Co., of Grand Rapids, has opened a garage and repair shop. C. M. Smith is president, and C. McAuley the manager.

The Key City Auto & Supply Co. is the style of a new concern which has been formed in Dubuque, Iowa, with headquarters at 729 Locust street. D. H. McCarthy is the manager.

The Autocrat Tire Co., of 3840 Olive street, St. Louis, Mo., has leased the building at 3133 Locust street for a term of years. It will move into the new salesrooms on September 1st.

Harry W. Doherty, who was the Studebaker agent at Portland, Ore., has been appointed manager of the factory branch which the Studebaker Corporation has opened in Tacoma, Wash.

The Lake Shore Auto Station, of Chicago, Ill., has purchased the property at 1512-1518 North Clark street, and will erect thereon a garage. The building will be 102 x 158 feet and will cost \$50,000.

Joseph J. Mandery has secured a permit for the erection of a two-story garage and service building at the corner of East avenue and Matthews street, Rochester, N. Y. It will be 124 x 198 feet and will cost, when complete, \$42,000.

James Bayless, who represented the Mitchell Motor Car Co. in Birmingham, Ala., has resigned his position and the agency has been given to D. A. Carsons. Temporary headquarters have been established at the Hillman building.

Howard D. Fisher, formerly with the Hippodrome Garage at Leavenworth, Kan., has gone into business on his own account and opened a garage at 512 Walnut street, in the same city. He will operate under the style the Walnut Street Garage.

The St. Louis (Mo.) branch of the Times Square Automobile Co., which was established there two years ago, has been discontinued. Its president, D. Donnelly, has opened a new salesroom under the style the St. Louis Automobile Exchange.

R. F. Thompson, formerly San Francisco manager of the Michelin Tire Co., has switched over to automobiles and become manager of the Howard Automobile Co., at 162-166 Twelfth street, Oakland, Cal. The company deals in Oldsmobile and Buick cars.

W. H. Imes and Albert E. Jones have purchased a controlling interest in the Weir Motor Car Co., of Topeka, Kan., and will continue the business under the style the Jones-Imes Motor Car Co., at 914 Kansas avenue. Marmon, American and Chalmers, and Detroit electrics will be handled.

F. P. Oswald, formerly proprietor of the Oswald Motor Car & Supply Co., has formed the Economy Automobile Co. and opened a garage and machine shop at 49 Lagrave street, Grand Rapids, Mich. He will take the agencies for several pleasure cars and will also handle commercial vehicles.

E. F. Blue, manager of the Toledo-Mansfield Rubber Co., has added automobiles to his other interests and formed a partnership with W. H. Aldrich, for the distribution of Reo cars in the Toledo territory. His headquarters will be at 1115 Madison street, which is the store of the rubber concern.

The Russell Motor Co., of Duluth, Minn., has been placed in the hands of a receiver on application by three of its creditors, the Duplex Mfg. Co., of Superior; Johns-Manville Co., of Milwaukee, and the First National Bank of Biwabik, Minn. Fred S. Harlow has been appointed by Judge Morris to disentangle its affairs.

Edward Gellinger, manager of the Stoddard-Dayton Automobile Co., of Portland, Ore., has leased the three-story building at Twenty-first and Washington streets, now under construction, for the term of five years. The structure will be 100 x 100 feet and will house Stoddard-Dayton, Paige-Detroit, Federal and Kissel cars.

The Faribault Engine Mfg. Co., of the Minnesota town of that name, has added automobiles to its manufacturing opera-

tions. It has built a garage and salesroom adjoining its plant, and will handle E-M-F cars, with Dr. N. S. Erb as general manager. F. R. Kummer will have charge of the repair and garage department.

The Chicago Motor Transportation Co., which was incorporated two weeks ago, will begin, on October 1, to operate a number of motor buses between the two big railway stations and the State street department stores. They will be fitted with low side entrances, heated by steam and cooled by electric fans, and will seat eighteen people comfortably.

C. A. Radcliff, of the Radcliff Motor Car Co., Louisville, Ky., has acquired the business of the Southern Motor Sales Co., handling the Cole car, and has amalgamated the two concerns. His principal office will be at the former headquarters of the Southern company, at the corner of Third and Breckenridge streets. In addition to handling the Cole, he will continue to represent the Stevens-Duryea.

Under the style the Weaver-Sealand Motor Co., a new concern has "opened up" at 1216 Huron Road, Cleveland, Ohio, to handle the Pierce-Arrow and Everitt lines. A service department for Pierce-Arrow trucks also will be installed on September 1. O. L. Weaver, formerly Ohio distributor for the Willys-Overland Co., and Frank Sealand, of the Winton Motor Carriage Co.'s Cleveland branch, comprise the company.

The application for a receiver for the Automobile Livery & Sales Co., of New Orleans, La., has been denied by Judge Skinner, under the provision of the Louisiana law, which does not provide for receiverships unless the company is insolvent. Richard Brock, one of the partners in the concern, had applied for a receiver in order to compel Fred and Charles Stock, the other two partners, to render an accounting of their management and to give him his proper profits. He alleged an intention on the part of the brothers to ruin the company and to use the proceeds to set up in another business independently.

Recent Losses by Fire.

New York City, N. Y.—Storerooms of Standard Tire Co., 1777 Broadway, burned. Loss, \$500.

Jamestown, N. Y.—J. C. Ball's garage at McDonnell and Royal avenues, and two automobiles, badly damaged. Loss, \$2,500.

Peru, Ind.—Great Western Automobile Co.'s plant slightly damaged; one test car and quantity of material burned. Caused by dropping of match into oily waste.

ORIGINAL PLANT 1902

RIM AND TIRE PLANT

The demand
for Firestone Tires and Rims has
grown phenomenally, and

The facilities
for taking care of this unprecedented
growth have expanded proportion-
ately until today we are operating
the largest exclusive tire manufac-
tory in America—but

The policy
has not been changed. It is the
same today as it was when we start-
ed, a few years ago, in the dimin-
utive plant shown above—"the best
irrespective of cost—the most miles
per dollar."

The Firestone Tire & Rubber Co.
"America's Largest Exclusive Tire and Rim Makers"
AKRON, OHIO
Branches, Agencies and Dealers Everywhere

NEW PLANT—CONTAINS THE LARGEST TIRE BUILDING IN THE WORLD



PUBLISHED EVERY THURSDAY BY

The Motor World Publishing Co.

Joseph Goodman, President. R. G. Betts, Treasurer.
F. W. Roche, Secretary

154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2482 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) . . . 10 Cents
Foreign and Canadian Subscriptions . . . \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceeding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, AUGUST 24, 1911.

Extensions of Equipment Liberality.

With the remarkable situation that it is the high priced cars and the low priced cars that are most liberal with equipment, while many of those that might be called in the middle range of price are quite meager in the amount of "extras" that are included in the selling price, the general tendency, frequently observed, is for more complete equipment that ever before. It would seem, however, that in many cases the manufacturer's zeal in providing equipment and accessories obtainable from the accessory makers is not matched by what he himself might do in adding minor and inexpensive features that would tend to impress the purchaser and owner.

Private experimenters, by calling in designing talent and spending considerable money, are from time to time showing that if a maker intends to equip his cars with acetylene tanks, it is possible to provide a suitable concealed place for them; that

tire holders and cases need not be excrescences outside the driver's seat, and that in addition to a proper original provision for receiving all the recognized accessories, the car may have various comforts and conveniences that if originally incorporated would add a cost that would be trifling in comparison with their benefits. Among these conveniences may be listed such things as rainproof tour book holders, pockets for waste and for such of the tools as are most frequently used, concealed but readily accessible tool boxes, matchbox holders, number-plate holders, inseting of side and rear lamps, improved piping arrangement for acetylene, and like refinements.

Undoubtedly in selecting equipment for owners it is hard to please everybody. If "clear vision" wind shields are provided, some owners may regard them as dangerous and prefer the brass channeled glass as not being so likely to cut their necks in a collision. Others will grumble if the brass channels divide their view of the bonnet, and would prefer "clear vision." Still others believe themselves much more capable of selecting accessories for their individual needs than the car maker could be. Nevertheless, few if any makers have received complaints from their customers on the ground of over-liberality in the matter of what is provided, as customers generally are glad to accept all that is given.

Whatever is done by the car maker in providing for the comfort and convenience of his customers is bound to meet with appreciation and response from an overwhelming proportion of his customers, and is certain to have a corresponding effect in attracting new friends. If a manufacturer reaches the limit in providing all the accessories that are available in the market, he can find further extensions for his forethought and liberality by modifying his car to receive them in such a way that they become parts of a complete whole instead of their being afterthoughts plastered on like cockleburrs on the tail of a fox terrier, and by creating minor conveniences of his own origination.

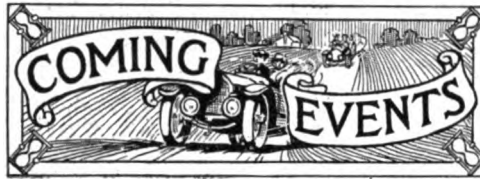
A New Nationalism for the Highways.

Several bills in favor of the construction of National highways have been introduced recently—by request—in the United States Senate, as well as in the lower House, and it would seem that out of the quantity of material presented a good and serviceable

foundation for a system of truly National highways might be established. It would be well enough if the bills at present before Congress had been introduced in good faith by the senators and congressmen, whose names are attached to them. Unfortunately they belong to the general order of legislative "strikes." They may have been drawn up at the suggestion of some local celebrity who by this means endeavored to place his town or city "on the map" by the expedient of building the map to order, or, in the language of the rostrum, upon the route of the "ultimate national highway—that is to say, the highway which sooner or later must be established across the continent, if the United States are to maintain their position in the vanguard of the nations." Or else they may be intended to create a number of commissions, and incidentally "fat" jobs for a select few, with the idea of a national highway appearing in the remote distance, as a mere "necessary evil." Appropriations of \$1,000,000 and more are "authorized" in these bills, and an enormous amount of bombastic talk is indulged in, but nothing is accomplished. If, instead of endeavoring to create commissions, and engineering boards, and "committees of responsible citizens," Congress would use its present Committee on Post Roads and quietly start building even the smallest section of the hoped-for trans-continental road, it would be taking a mighty step in the right direction. "L'appetit vient en mangeant"—and once the advantages of a stretch of genuine "National" road are realized, there can be no question of the spread of the movement that would make of the highway a truly National institution.

Excesses in Truck Operation.

Commercial vehicle builders are wont to complain of the bad habits of their customers. Despite every precaution on the part of salesmen, demonstrators and instructors, they explain with furrowed brows that the users will persist either in overloading or overspeeding their trucks, or both. Whether the offense is committed with or without the direct knowledge of the owner of the vehicle is not always easy to discover. However that may be, the fact remains that such abuses are prone to cause early decay in the vehicles and, by shortening their useful lives and increasing their cost of upkeep, to reduce the owners' confidence in motor haulage.



In the same connection it may not have occurred to some of the more ambitious truck builders that they themselves inadvertently may be contributing to just such unsatisfactory operating results. The load-carrying question has been pretty thoroughly discussed, and from every possible angle. One impression that remains after all's said and done, however, is that when a "three-ton" truck is sold with the whispered assurance that it is "strong enough to carry five," the new operator is practically certain to put it to the test. Just in the same way, a maker who counsels low running speeds under load and then provides a transmission gearing such that the machine can be driven at upwards of fifteen miles an hour, is almost sure to have to contend with troubles resulting from over-speeding. One manufacturer, having provided a governor to limit the speed of his product to a safe maximum, indicates to his customers that it is possible to exceed that limit in but one way, namely, while coasting; letting the truck run free down hill; therefore, he insists is a practice which must be avoided.

Still another way in which not a few makers may be working against their own best interests is in the marketing of vehicles which are too heavy to be employed economically in certain localities. Vehicles that are so ponderous as to work immediate havoc with the roads over which they run, must in the very nature of things suffer corresponding strains. Ordinarily it is argued that bad highway conditions are sadly interfering with the development of motor traction. Which is unquestionably true. But would it not be wise to make the best of a bad matter by adapting the design of the equipment to suit existing conditions, especially seeing that highway improvement is a question of slow and painstaking development?

It frequently happens that in localities where one maker's product fails to win approval, that of another is highly regarded. The very question of proportioning the vehicle to meet highway conditions is at the root of the enigma. In country districts the lighter vehicles work to best advantage. In cities the maximum serviceable weight remains to be determined. This much is certain, however, that there is a growing tendency to exceed it. Trucks that tear up and destroy the pavement must, of necessity, themselves suffer. The movement for moderate loading and care-

ful adjustment of speeds is now well under way, but it still remains to effect a compromise between the advantages of concentrating loads in large units and the disadvantages that result from excessive wheel pressures.

"A workman is known by his chips" and a motorist by the way he changes gears. Likewise the skilled driver is distinguished by the way he uses his brakes, as has been said before. But one of the ways in which prudent driving immediately is revealed is

Oct. 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers' Association's open air show.

Oct. 3-7, Danbury, Conn.—Track meet under auspices Danbury Agricultural Society.

October 7, Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

Oct. 9-13, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

Oct. 14, Santa Monica, Cal.—Santa Monica road races under auspices of Santa Monica Motor Car Dealers' Association.

Oct. 12-22, Berlin, Germany.—International automobile show in Exhibition Hall, Zoological Garden.

Oct. 13-14, Atlanta, Ga.—Racemeet under management H. C. George.

Oct. 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

Nov. 1, Waco, Texas—Racemeet under auspices Waco Automobile Club.

Nov. 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

Nov. 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

Nov. 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

Nov. 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

Nov. 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

Nov. 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

Nov. 30, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

Jan. 6-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden.

Jan. 10-17, New York City—National Association of Automobile Manufacturers' 12th annual show in Grand Central Palace.

not so much in the application of the brakes as in the way in which they are released. With decreasing speed a diminishing amount of force is required to maintain uniform retardation, therefore the brakes may be gradually released as the car loses headway until it comes to rest without shock. The careless driver invariably "brings up with a round turn," even as he starts with a crash, and thereby subjects his car and its occupants to something of a jolt. Besides being more graceful, the other method saves wear on the bands.

BURMAN AND THE BENZ IN CANADA

Moross's "Headliners" Perform at Montreal and Crowd Has Chance to Shudder—Unusual Handicapping.

E. A. Moross's racing aggregation appeared at Montreal on Sunday, 20th inst., and performed with its usual brilliance, brilliance quite sufficient to dim the two or three local lights that participated in the automobile races which were contested at Delorimier Park. The track is a half-mile dirt course and the races had been scheduled for Saturday, 19th inst., but rain on that date, which put it in bad condition, postponed the event until the following day.

Robert Burman with his Blitzen Benz was widely credited with a mile "record" on a half mile track, both for the track and for himself. The particular mile referred to, however, was an indeterminate distance, made in competition, and was not officially timed. In other words, it was no record at all, even for the track. Even had it been legitimate time, the American Automobile Association does not recognize "records" which are made on tracks smaller than one mile in circumference. The week previous Burman, at Electric Park, Baltimore, Md., on a half mile track in a time trial rolled off a mile in 1:08 minutes.

The race in which he is credited with lowering both the time of the Delorimier and Electric Park tracks was the feature of the day. It was a three miles open handicap between Burman (Benz), Kilpatrick (Hotchkiss) and Knipper (Mercedes), which was won by Burman in 3:52½, after he had given Kilpatrick 15 seconds start and Knipper 10 seconds. During the second mile he is credited with twice encircling the course in 1:07 minutes. In another three mile handicap in which two local men—Gadbois and Cavers—competed with the "speed-king" in E-M-F and Hudson cars respectively, Burman's time was 3:18. Unusual handicapping methods were revealed in this race, Cavers being allowed one mile and 30 seconds—not one minute and 30 seconds—and Gadbois starting with a lead of one mile. Burman won easily though he had to go about one-third further than the others.

In the race for small cars Gadbois in an E-M-F was accompanied by Percy Gibbs of the E-M-F factory at Detroit, and led from the start. Cavers (Hudson) and Grennan (Ford), were 60 yards behind on the fourth lap and on the seventeenth lap Grennan retired. Cavers was second. The time was 8:15½. Gadbois also won a five-mile race from Cavers in which but these two participated. The time was 6:37½.

The two mile match race between Knipper and Kilpatrick was closely contested, and up to the moment that Knipper crossed

the tape a half a length in front of Kilpatrick, it was in doubt. First one then the other led from the start until just near the finish, when Knipper drew a little in advance. The drivers were so close that some of the spectators thought Kilpatrick had won. The time was 2:32. The summary:

Five miles, stock chassis, 161 to 300 cubic inches—Won by A. Gadbois, E-M-F; second, Cavers, Hudson; Grennan, Ford, retired after 17th lap. Time, 8:15.

Two miles time trial—William Knipper, Mercedes, 2:26 minutes. Track record, 2:20 minutes.

Two mile match, between Bob Burman, Benz, and William Knipper, Mercedes—Won by Burman. Time, 2:40½.

Three miles handicap, free-for-all—Won by Burman, Benz, (scratch); second, Cavers, Hudson, (one mile, 30 sec.); third, Gadbois, E-M-F, (one mile). Time, 3:18.

Two miles match, between William Knipper, Mercedes, and H. J. Kilpatrick, Hotchkiss—Won by Knipper. Time, 2:32.

Five miles match, between A. Gadbois, E-M-F, and Cavers, Hudson—Won by Gadbois. Time, 6:37½.

Three miles handicap, free-for-all—Won by Burman, Benz, (scratch); second, Kilpatrick, Hotchkiss, (0:15); third, Knipper, Mercedes, (0:10). Time, 3:52½.

Wisconsin Association Places Awards.

All protests following the announcement of the winners of the Wisconsin State Automobile Association's reliability run, which was started on July 17 and finished on July 22, having been amicably settled, the prizes have been awarded by the judges as follows: The two principal prizes, the Milwaukee Sentinel trophy, for the sweepstakes, and the Milwaukee Journal trophy, for the best score in the touring car class, both went to Harry Bisbee, driver of No. 8 Imperial. Diener, who piloted a Ford, was awarded the Milwaukee Evening Wisconsin trophy as winner of the runabout class, and the Emil Schandain trophy went to J. D. Babcock, whose Franklin had the cleanest slate in the private owners' division.

The complete score, irrespective of classes, was as follows:

Car and Driver.	Total Penalties.
Imperial, Harry Bisbee.....	1
Ford, W. H. Deiner.....	2
Cadillac, A. A. Jonas.....	3
Krit, W. G. Westwood.....	4
Reo, A. J. March.....	6
Imperial, H. Crampton.....	8
Warren-Detroit, R. D. Rockstead..	14
Overland, R. G. Bates.....	22
Case, Will Jones.....	29
Buick, E. Hokanson.....	31
National, Chas. Merz.....	33
Franklin, J. D. Babcock.....	61
Buick, Geo. P. Hewitt.....	63
Buick, D. Nicolazzi.....	162
Regal, C. H. Delafield.....	259
Petrel, J. J. Mack.....	Withdrawn

Schandain Trophy.

Franklin, J. D. Babcock.....	17
Auburn, C. Hucksdorf.....	1487
Kissel, M. L. Stevens.....	1646

THREE PERFECT IN ST. LOUIS RUN

Reliability Tour to Kansas City and Back Proves a Strenuous Undertaking—Luncheons Galore.

Thirteen entrants participated in the first three-day inter-city reliability run from St. Louis to Kansas City and return, which was inaugurated by the St. Louis Automobile Dealers and Manufacturers' Association on Monday, 14th inst. Of that number but three survived the trip with perfect scores. They were, T. E. Baker (Dorris); H. L. Bagley (Ford); and W. B. Scott (Flanders). The contestants left St. Louis at one minute intervals in the following order: C. C. Donovan, Inter-State; J. E. Davis, Dorris; C. M. Brainard, Mitchell; Herman Schnure, Marmon; H. L. Bagley, Ford; Frank Dunnell, Ford; George Bolz, Ohio; E. P. Rhodes, Buick; George Neff, Cadillac; Dan Histon, New Parry; G. M. Herron, Flanders; B. W. Scott, Flanders; John H. Phillips, Hudson; C. S. Gilpin, Ford, non-contestant.

The noon control was at Louisiana, Mo., and all the contestants made the journey of 98 miles in a little under five hours, without incident, as the roads were in almost perfect condition. Dan Histon (Cadillac) and C. M. Bernard (Mitchell) arrived first. The citizens of Louisiana received the motorists with enthusiasm, and a local innkeeper provided complimentary entertainment in the form of luncheon and garage service. Leaving Louisiana the party proceeded to Moberly, via Mexico, the first day's destination and 198 miles from St. Louis. Three cars were penalized for road errors. Frank Dunnell (Ford) lost 7 points for running out of gasoline; E. P. Rhodes (Buick) and G. M. Herron (Flanders) lost 6 and 10 points respectively for being late at control.

The return from Kansas City was made over the northern route and the destination of the third day's trip was at Columbia. The run was over the hardest roads of the tour. Not only were clean scores of four additional contestants marred but the pilot car, an American Traveler, driven by W. M. Johnson, went out of commission and for the balance of the journey W. M. L. Stevens, of Kansas City, the official referee, accompanied L. S. Maurer, the pacemaker, in an Amplex. The Ohio, driven by George Boltz, which during the first two days had a perfect road score, was withdrawn because of an accident to its ignition system. The highest scores against the cars were 49 against the Flanders driven by Herron and 56 against the Inter-State, driven by Donovan. During this part of the trip, J. H. Phillips (Hudson) was assessed 15 points for minor troubles. The run into St. Louis was without incident and no additional penalties were imposed.

FINAL TOUCHES ON ELGIN COURSE

Everything is Ready for Raising the Curtain on National Road Races—Some Speedy Practice Work.

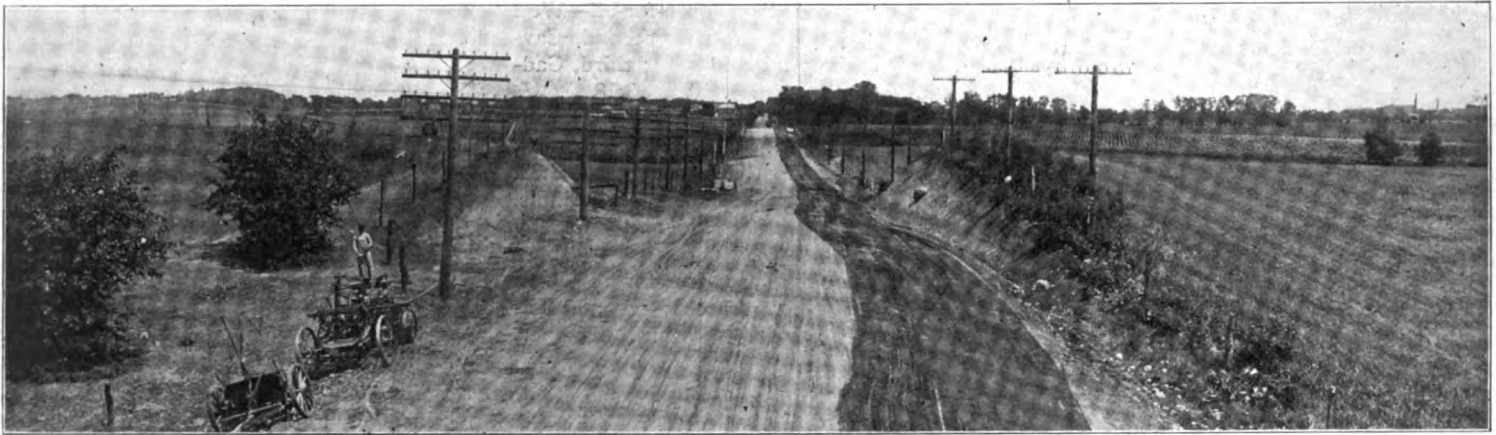
With the first of the 1911 stock chassis road races, and according to present indications the only strictly stock car road events which will be held this season, just one day off, all of the drivers now are on the stage at Elgin, Ill., where the curtain will be raised tomorrow (Friday) on three events in one. They are the Illinois trophy

practice is going on. For two hours each day, from 11 in the morning till 1 in the afternoon, the $8\frac{1}{2}$ miles circuit is closed to the public, and some unusually fast laps have been reeled off. In fact, some of the lighter cars have shown bursts of speed in excess of the best time made last year in the big car race, and the chances that Mulford's average of 62.5 miles an hour, made last year, will be eclipsed, look better than ever.

That Mulford is out for blood and is prepared to push his mount to the limit to defend his title to the big trophy is evidenced by the way he is driving in practice. On Tuesday, 22nd inst., he laid claim

Lee, both are credited with fast laps. The "Simplex twins," De Palma and Wishart, are factors in the betting, too, though comparatively little has been seen of them in practice. De Palma was not out on Tuesday, having met with a slight accident on the previous day, and Wishart contented himself with jogging around for a single lap.

Despite the fact that practice is carried on under almost the same conditions as the races will be run, flagmen being stationed at frequent intervals around the course to warn drivers and spectators, several accidents have been recorded, one of them proving fatal to Ralph Ireland, who was



ONE OF THE IMPROVEMENTS IN THE ELGIN COURSE—A LEVELED HILL ON THE HOMESTRETCH

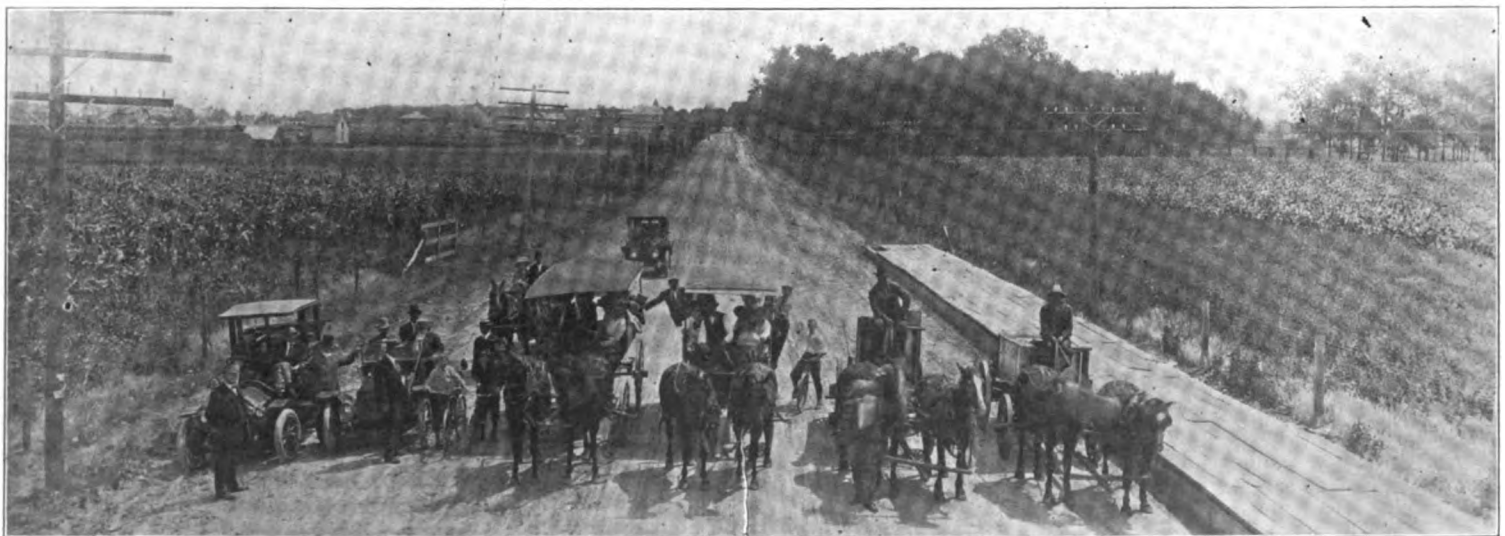
race at 200 miles for cars in the 301-450 inch class, the Kane County trophy race at 170 miles for cars in the 231-300 inch class, and the Aurora cup race in which the "baby" cars—161-230 cubic inches piston displacement—will race 135 miles. On Saturday, the Elgin national trophy race, which is the piece de resistance, will be staged; it is 305 miles and is for cars having not more than 600 cubic inches piston displacement.

It is over a course well prepared that

to the fastest lap yet made in practice and incidentally the fastest lap that ever has been made over the course; unofficially he was clocked in 7:10, which is at the rate of close to 72 miles an hour. Aitkin in his big blue National also looms large, his practice spins being just a shade slower than Mulford's. Grant, with the "Old 18" Alco, is working out at his usual conservative pace of about 65 miles an hour—the pace that won him two Vanderbilt races—while his team mates, Hartman and

driving a Staver-Chicago in practice for the Kane County event. A blown out tire is said to have caused the accident, and though Ireland subsequently died, his mechanic escaped with minor bruises and cuts.

The course itself is in almost perfect condition. As was told last week in the Motor World, practically all of the roads have been widened and "ironed out," and in one place a hill has been leveled. The "stretch" in front of the grandstand is, to quote one



THE SMOOTH, 54-FOOT-WIDE MILE OF ROADWAY IN FRONT OF THE GRANDSTAND

of the drivers, "as smooth as a billiard table." A mile of this stretch is 54 feet wide and the remainder varies in width from 25 to 30 feet. But a single complaint as to the condition of the course was heard, and that was caused by over-zealousness on the part of the workmen in sprinkling too much oil on the third leg, MacLean avenue. The major portion of it was removed, however, and now that part of the course is in as perfect condition as the rest of it. Unless heavy rains occur before the race the course will be unsurpassed as to speed and safety.

The prize "pot" has been still further

time. The list as it stands at present is as follows, and it is unlikely that there will be any changes, though it is hinted that the entry of a second Abbott-Detroit for the Aurora cup has been made:

Elgin National, stock chassis under 600 inches.

Car.	Driver.
Alco	Grant
Alco	Hartman
Alco	Lee
Cino	Burt
Lozier	Mulford
Mercer	Hughes
National	Zengle
National	Aitken
Pope-Hartford	Buck

Aurora Cup, stock chassis, 161-230 inches.

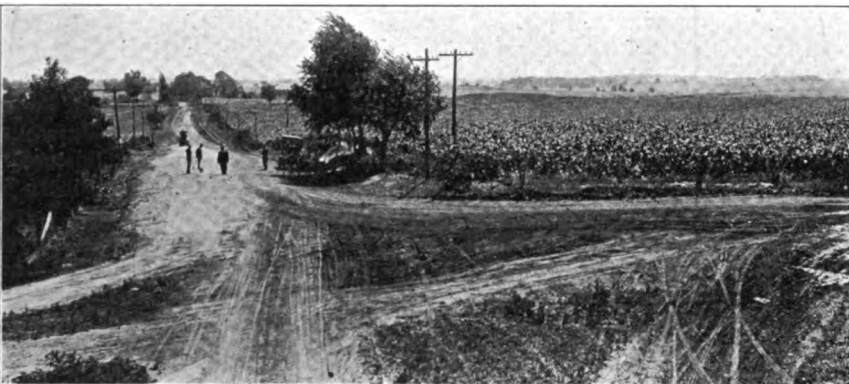
Abbott-Detroit	Roberts
Ford	Kulick

French View of Prince Henry Tour.

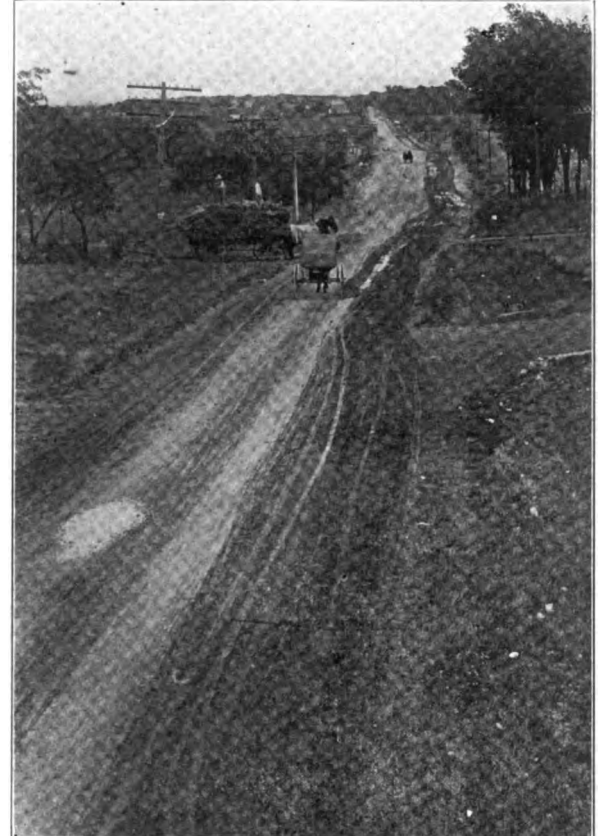
Speaking editorially of the recent Prince Henry Tour, and of its probable effects upon other large automobile organizations, the French automobile paper "Omnia-La Locomotion" commends the extreme diplomacy and delicacy with which the whole event was handled from the beginning. "The symmetrical distribution of the various cups and prizes does not tell us any-



UDINA TURN WHICH HAS BEEN WIDENED TO 80 FEET



ANOTHER EXAMPLE OF TURN WIDENING AT McQUEEN'S



APPROACHING McQUEEN'S TURN ON ELGIN COURSE

"sweetened" by the offer of C. F. Splitdorf of \$1,475 to be split up among the winning drivers in the four events, contingent upon the use of Splitdorf ignition apparatus. Two hundred and fifty dollars will be given the winner of the Elgin trophy, with \$150 and \$100 for second and third places respectively. In the contests for the other three trophies, the Splitdorf bonus will be \$150 for first, \$100 for second and \$75 for third in each case.

With the nomination, by the National Motor Vehicle Co., of Aitken and Zengle for the Elgin trophy and Merz and Herr for the Illinois trophy, the list of drivers now is complete. Earlier in the week, Nikrent and Robillard were assigned to the two Staver-Chicago entries in the Kane County event, which up to then were without accredited pilots, and the unnamed Colby and Cole drivers were given as Oren and Morris, respectively, about the same

Simplex	De Palma
Simplex	Wishart
Illinois Trophy, stock chassis 301-450 inches.	
National	Merz
National	Herr
Velie	Jeffkins
Velie	Stickney
Kane County Trophy, 231-300 inches.	
Cino	Raimsey
Cino	Burt
Colby	Pearce
Colby	Armstrong
Colby	Oren
Cole	Jenkins
Cole	Morris
Corbin	Maisonville
Fal	Greiner
Fal	Gelnaw
Fal	Pearce
Mercer	Hughes
Mercer	Barnes
Staver-Chicago	Nikrent
Staver-Chicago	Robillard
Staver Chicago	Monckmeier

thing about the individual performances of the cars or drivers; it does not give any one participant the chance or right to gloat over the poor showing of some other contestant. This highly commendable decision was made in order to preserve the absolutely 'private' character of the tour: Prince Henry had asked nothing of any manufacturer or of the general public, and therefore was bound by no obligations to either of them; the exact results of such a tour can only be of value to the manufacturer for advertising purposes, or to the bolstering up of the pride of the 'clean score' contestant. The German prince desired an enjoyable, elegant sporting trip unmarred by internal friction due to jealousy, and he succeeded beyond his expectations. In fact, he succeeded in establishing a new 'formula' for holding endurance runs for amateurs—that of 'good-fellowship.'"

NO STOCK CAR WEIGHT MINIMUM

**Manufacturers Contest Association Meeting
Has Resulted in Removing It—Fewer
Stock Car Races.**

Though a part of the transactions of the annual August meeting of the Active and General Rules Committee of the Manufacturers' Contest Association, which was held in Detroit on the 10th and 11th inst., at last has been made public, little, if anything, more than was published last week in the Motor World has been divulged, the report being principally a confirmation of the information which had leaked out previously. Russell A. Field, secretary of the M. C. A., refused to be interviewed on the subject of the meeting, though he admitted that a large amount of business not mentioned in the report had been transacted but would not be made public.

The only real action which was taken at the meeting was the elimination of the minimum weight restrictions from the rules governing stock car events. Hereafter a car need not be of a prescribed minimum weight to be eligible for stock car events. This rule already has gone into effect. With this single exception, the rules remain unchanged, all of the other business transacted being in the nature of discussions, the fruits of which were a number of recommendations which may or may not be accepted.

One of the important matters under consideration, as stated last week, was that pertaining to racing on half mile and mile dirt tracks. As a result of the discussion it was recommended to the Contest Board of the American Automobile Association that no sanctions be issued hereafter for half mile tracks, and that promoters desiring to hold meets on mile tracks be required to furnish a cash bond to insure that the track be properly safeguarded, such safeguarding to include the sprinkling of the track with oil or some other substance to lay the dust, and the removal of the fence to a safe distance from the track.

One of the recommendations which just has come to light was to the effect that the number of stock car events next year be reduced to the point where the Contest Board will be in a position to see that the stock car restrictions are strictly lived up to. Such events would include road, track and beach racing and hill climbs, and would be allotted with due regard to the normal automobile centers of distribution in the country.

George Robertson, president of the newly formed Racing Drivers' Association—the "drivers' union"—was among those who attended the meeting, and made several recommendations which are being duly considered. The principal of these was that racing drivers be divided into two classes,

novices and professionals, and that a driver be required to win his novice race before being allowed to compete with professionals. Robertson also made a number of other recommendations expressing the sentiments of the drivers concerning the protection of their rights.

Other suggestions and recommendations which were made are substantially as already stated, the subject which caused the greatest amount of discussion being that pertaining to commercial vehicle contests. Before it was formally recommended that sanctions for such contests be refused except to duly organized clubs, it was suggested that different schedules be adopted for contests in cities and those which are held in the country. No action was taken on this question.

Organizing by Counties in Nebraska.

The Nucholls County Automobile Club is the title selected by motorists of Nucholls County, Neb., for a new club formed in Nelson. The officers are: President, J. W. Lamb, of Nelson; first vice-president, J. H. Fair, of Hardy; second vice-president, J. M. Silvers, of Superior; secretary-treasurer, J. W. Whereman, of Nelson.

Forty-five motorists of Clay Center, Neb., have formed the Clay County Automobile Club, which will affiliate with the Nebraska State Automobile Association. The officers are: President, C. H. Epperson, of Fairfield; vice-president, Dr. J. C. Lattax, of Clay Center; secretary, L. B. Stiner, of Clay Center; treasurer, Gus Bender, of Stutton.

Motorists of Geneva, Neb., have taken preliminary steps to form the Filmore County Automobile Association to affiliate with the state organization. D. E. Watson, secretary of the Nebraska State Automobile Association, will act as president until each precinct of the county is heard from, and permanent officers are elected.

Amarillo to Give Ambitious Meet.

Down in Texas, where big things are done in small towns, there is to be a race meet which the promoters say will eclipse the Galveston affair. It is to be held on a track near Glenwood park. The park is in the suburbs of Amarillo, the principal town of Porter county, in the Northwestern section of the Lone Star State, and the date set is September 2 to 4. Amarillo has a population of 9,957 according to the last census, and it appears that every resident either owns an automobile or is nearly related to some one who does. The race meet is promoted by the Panhandle Auto Fair Association.

Jersey's Commissioner Will Resign.

New Year's Day, 1912, will be a joy day for many motorists in the East. On that day J. B. R. Smith, state commissioner of motor vehicles for the State of New Jersey, will retire from office to practice law, according to an official announcement.

TWENTY-TWO GLIDDEN ENTRIES

**Private Owners Attracted by Changes in
Big New York-to-Jacksonville Tour—
Savannah's Invitation.**

Since the definite settlement of the date and route of the 1911 Glidden tour, which, as stated last week in the Motor World, will be started from New York City on October 14th, and will be terminated 10 days later in Jacksonville, Fla., entries have been very much more in evidence. Twenty-two entries have been received by the American Automobile Association, and, demonstrating the fact that the changing of the tour to a Grade IV contest has stimulated the interest of private owners, considerably more than half the entry blanks bear the signatures of persons who are not connected with the trade.

That manufacturers, too, are now prepared to lend their support to the tour is evidenced by the fact that several of them have come forward with entries, two of them, the Studebaker Corporation and the U. S. Motor Co., having nominated teams of three each. Three 1912 Maxwell constitute the latter's entry and the team will be designated "N. Y. Team No. 1." The Studebaker has entered three E-M-F cars. The remainder of the entry list is as follows: Mayor Courtland S. Winn, of Atlanta, 1912 Flanders; Major John S. Cohen, 1912 White (gasolene); J. H. Marsteller, Chalmers; Dr. W. M. Stimson, Oldsmobile; Claude N. Nolan, Cadillac; Robert P. Hooper, Garford; Edwin P. Ansley, Pierce-Arrow; C. H. Johnson, Stevens-Duryea; H. M. Grant, Marmon; Herbert B. Race, Cole "30"; S. S. Albritton, Cadillac; Capt. W. J. Hillman, Cadillac; Alan H. Whiting, Cunningham; Ray M. Owen, two 1912 Reos.

Despite the fact that the Savannah Automobile Club has been making strenuous efforts to have the route of the tour changed so as to include Savannah in the itinerary, and even has gone so far as to notify the A. A. A. that it would send a representative to confer with officials of the sports governing body, it is extremely unlikely that any change will be made, inasmuch as the A. A. A. has entered into a definite agreement—a "contract," to quote an official of that body—with other interests wherein all arrangements have been settled. Failing to obtain a change of route, it is said that the Savannah Automobile Club will endeavor to have the date of the tour changed so that the tourists will be in the vicinity of Savannah at the time of the Grand Prize and Vanderbilt races.

It is expected that the pathfinding car, carrying a representative of the Touring Information Bureau of the A. A. A., will leave New York not later than next week.

THE ENTRANTS IN THE 750 MILES CHICAGO-DETROIT TRUCK CONTEST: THEIR PERFORMANCES AND FINAL SCORES

Division 2K, 501-1,000 Pounds Capacity

Name of Truck.	Entered by	Where Located	Make of Carburettor	Make of Tires	Gala.	Cost	Pints	Gasoline at 12c per Gal.	Lubricating Oil at 25c per Gal.	Cost	Drivers' Wages	Depreciation 12% per Annum, 300 Days	Total Cost	Total Cost Less Tires	Tire Cost per Mile	Total Cost including Tires	Total of Road and Final Technical Penalties	Cost per Ton Mile	Total Cost per Ton Mile Incl. Pen's at 1/10c per Penalty
24—Lincoln	Lincoln Motor Car Co.	Chicago	Schebler	Swinchart*	41	4.92	18.25	7.98	108.5	3.38	22.50	1.76	29.75	.039	.03	.069	5	.138	.143
37—VanDyke	VanDyke Motor Car Co.	Detroit	Holly	Swinchart*	66.5	7.98	108.5				22.50	3.24	37.10	.04908	.03	.079	195	.15816	.353
9—Poss	Poss Motor Wagon Co.	Detroit, Mich.	Stromberg	Swinchart*	Did not finish														
Division 3K, 1,001-1,500 Pounds Capacity																			
10—Buick	Buick Motor Co.	Chicago	Schebler	Goodyear*	44.624	5.35	58.5			1.83	22.50	3.00	32.68	.043	.035	.078	0	.1170	.117
27—Krickworth	Krickworth Motor Co.	Chicago	Kingston	Firestone	57	6.84	38			1.19	22.50	4.32	34.85	.046	.02	.066	25	.0990	.124
11—Buick	Buick Motor Co.	Chicago	Schebler	Goodyear*	52.625	6.25	47.5			1.48	22.50	3.00	33.30	.044	.035	.079	15	.1185	.134
5—Modern	Pauling Green Motor Co.	B'ling Green, O.	Stromberg	Republic	8.94	8.94	13			.47	22.50	5.22	37.13	.0491	.02	.0691	41	.1037	.145
33—Chase	Chase Motor Sales Ag'cy.	Chicago	Holly	Diamond	59.375	7.13	24			.75	22.50	2.88	33.26	.0439	.02	.0639	86	.0959	.182
31—Little Giant	Chic. Pneum. Tool Co.	Chicago	Schebler	Diamond	77.75	9.33	96.5			3.02	22.50	3.15	38.00	.050	.02	.070	137	.1050	.242
Division 4K, 1,501-2,000 Pounds Capacity																			
23—LeMoon	Nelson LeMoon Co.	Chicago	Rayfield	Firestone	52	6.25	35			1.09	22.50	7.20	37.03	.0489	.02	.0689	3	.0689	.072
6—Hewitt	Metzger Motor Car Co.	Detroit, Mich.	Kelly	Swinchart	63.625	7.64	51.5			1.62	22.50	4.68	36.44	.0482	.02	.0682	26	.0682	.0942
34—Chase	Chase Motor Sales Ag'cy.	Chicago	Holly	Swinchart	69.75	8.37	48			1.50	22.50	4.59	36.96	.0488	.02	.0688	33	.0688	.102
39—Ideal	Ideal Motor Car Co.	Ft. Wayne, Ind.	Stromberg	Goodyear	77.625	9.32	198.5			6.22	22.50	4.23	42.27	.0559	.02	.0759	57	.0759	.133
38—Clark	Clark Delivery Car Co.	Gr'd Crossg, Ill.	Schebler	Diamond	90.375	10.85	17.5			.55	22.50	6.66	40.56	.053	.02	.073	80	.073	.153
20—Lauth Juergens	Lauth Juergens Co.	Freemont, Ohio	Rayfield	Swinchart	71	8.52	25.835			.80	22.50	6.39	38.21	.0505	.02	.0705	96	.0705	.167
30—Owosso	Owosso Motor Co.	Owosso, Mich.	Schebler	Diamond	88	10.50	17.75			.56	22.50	6.22	39.78	.0525	.02	.0725	103	.0725	.176
1—Gramm	Gramm Motor Car Co.	Lima, Ohio	Schebler	Republic	97.875	11.75	33			1.06	22.50	6.75	42.06	.0556	.02	.0556	1518	.0756	1.593
Division 5K, 2,001-3,000 Pounds Capacity																			
32—Federal	Federal Motor Truck Co.	Detroit, Mich.	Stromberg	Goodyear	96.875	11.63	16			.50	29.97	5.47	47.57	.062	.03	.092	9	.0736	.083
36—Stephenson	Stephenson Motor Truck Co.	Milwaukee	Stromberg	Swinchart	108.375	13.01	17.5			.55	29.97	6.20	49.73	.065	.03	.095	2050	.076	2.126
Division 6K, 3,001-4,000 Pounds Capacity																			
2—Gramm	Gramm Motor Car Co.	Lima, Ohio	Schebler	Republic	117.75	14.13	27.5			.86	29.97	8.38	53.34	.0706	.03	.1106	9	.0553	.0643
Division 7K, 4,001-5,000 Pounds Capacity																			
13—Mais	Mais Motor Truck Co.	Indianapolis, Ind.	Rayfield	Firestone	115.25	13.83	17			.53	29.97	10.80	53.13	.0728	.04	.1128	1	.0451	.0461
16—Kelly	Kelly Motor Truck Co.	Springfield, Ohio	Breeze	Goodyear	121.375	14.57	36			1.13	29.97	9.04	54.71	.0723	.04	.1123	4	.0449	.0489
Division 8K, 5,001-7,000 Pounds Capacity																			
17—Kelly	Kelly Motor Truck Co.	Springfield, Ohio	Breeze	Hartford	126.25	15.15	45.5			1.41	37.53	10.08	64.17	.084	.04	.124	13	.0354	.048
14—Dayton	Dayton Auto Truck Co.	Dayton, Ohio	Stromberg	Diamond	129	15.48	92.5			2.36	37.53	10.84	66.21	.087	.04	.127	46	.0423	.088
3—Gramm	Gramm Motor Car Co.	Lima, Ohio	Schebler	Republic	160.15	19.22	39			1.22	37.53	11.40	69.37	.091	.04	.131	1355	.0437	1.399
Division 9K, 7,001-10,000 Pounds Capacity																			
4—Gramm	Gramm Motor Car Co.	Lima, Ohio	Schebler	Republic	188.25	22.59	62			1.94	37.50	14.82	76.88	.1017	.06	.1617	82	.0323	.114

SAND AND MUD HAMPER TRUCKS

Last Three Days of Chicago-Detroit Contest Result in Heavy Penalties—Final Score Based on Costs.

It was over entirely different and very much worse roads that the 25 surviving trucks in the Chicago American's nine days reliability contest were forced to run on the last three days. They were hub deep in sand and mud alternately, and the severe conditions tested the trucks to the utmost, with the result that but seven of them could show clean scores when the run was finished at Chicago on Thursday last, 17th inst. The winners, which were determined on the cost per ton mile basis, and not on road and technical scores alone, were as follows: Division 2K, 24-Lincoln; division 3K, 10-Buick; division 4K, 23-LeMoon; division 5K, 32-Federal; division 6K, 2-Gramm; division 7K, 13-Mais; division 8K, 17-Kelly; division 9K, 4-Gramm. Following is the list of penalizations for the last three days, the complete recapitulation being given in the accompanying table, in which an asterisk beside the name of the tires indicates that they are pneumatics.

Seventh day—Jackson to Kalamazoo, Mich., 65.9 miles—37-VanDyke, 13 points, motor stops; 20-Lauth Juergens, 1 point, fixing ignition wire; 30-Owosso, 50 points, replacing bolts in universal joint; 36-Stephenson, 57 points, adjusting clutch, replacing key on left jack shaft, putting chain on sprocket; 2-Gramm, 3 points, adjusting fan belt and bracket; 3-Gramm, 666 points, replacing fan belt, repairing radiator; 14-Dayton, 10 points, putting in new gasoline line; 4-Gramm, 49 points, replacing bolt on universal joint and cotter pin in gear shifting rod and adjusting clutch; 31-Little Giant, 5 points, changing spark plug and putting chain back on sprocket; 33-Chase, 2 points, changing spark plug.

Eighth day—Kalamazoo, Mich., to South Bend, Ind., 68.7 miles—37-VanDyke, 118 points, fastening underpan and stopping motor to let it cool; 20-Lauth Juergens, 62 points, repairing magneto contact breaker; 30-Owosso, 24 points, putting Woodruff key in gear shift lever, putting bolts in universal joint and replacing one ball; 3-Gramm, 563 points, replacing fan shaft and repairing radiator; 4-Gramm, 11 points, putting on new fan belt and tightening it later; 27-Krickworth, 1 point, putting on chain; 31-Little Giant, 5 points, putting chain back on sprocket; 33-Chase, 4 points, changing spark plugs.

Ninth day—South Bend, Ind., to Chicago, 96.7 miles—36-Stephenson, 1,988 points, broken crank shaft; 3-Gramm, 122 points, work on fan; 27-Krickworth, 3 points, putting chain back on sprocket; 31-Little Giant, 10 points, putting chain back on sprocket.

JERSEY RECIPROCITY IS GAINING

Movement Gets Endorsement and Promise of Aid from Governor Wilson—Higher Fees to Compensate.

Reciprocity at any cost appears at present to be the sentiment of New Jersey motorists. If laws conforming to the resolutions which were adopted at a public meeting at Asbury Park on Saturday last, 19th inst., are enacted, motorists of New York and other states soon will be admitted "free of charge" to New Jersey, though at an added cost to the Jersey motorists themselves, provision being made in the resolutions that license fees be increased in order to offset the fear that the revenue to the state might be decreased if reciprocity were granted. The resolutions, which were offered by Joseph H. Wood, president of the Associated Automobile Clubs of New Jersey, are as follows:

"Resolved, that a law be enacted with regard to the use of automobiles within the state which will grant the same rights and privileges to the owners and drivers of machines from other state, that are accorded the citizens of New Jersey in the state from which said owners and drivers hold their licenses, and be it further

"Resolved, that it is the sense of this meeting that the system of licensing automobiles in New Jersey be adjusted so as to show an increase in revenue."

Though the meeting was not as well attended as had been expected, the resolutions were not passed without a rather heated discussion and the withdrawal of others, also offered by Wood, calling for reciprocity but without any mention of an increase in the license fee. The meeting was presided over by T. Frank Appleby, mayor of Asbury Park, and president of the Ocean Boulevard commission, the latter body being responsible for the gathering. Though an invitation to be present had been sent to Motor Vehicle Commissioner J. B. R. Smith, he failed to appear.

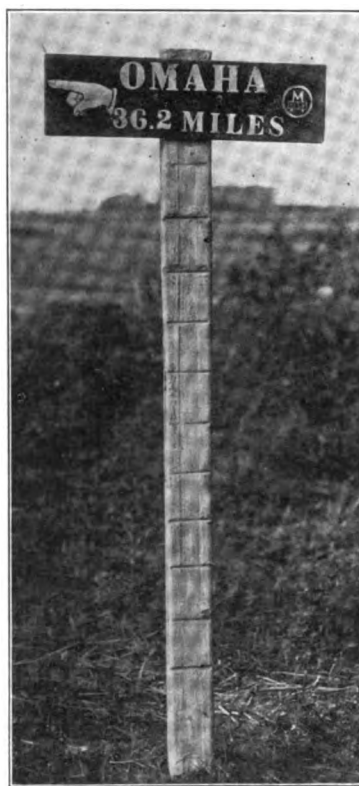
The reciprocity movement now has the backing of Governor Wilson, of New Jersey, and motorists of that state are enthusiastic over the possibility of the removal of the "Chinese Wall" in the near future. Headed by A. G. Batchelder, chairman of the Executive Committee of the American Automobile Association, a delegation of owners visited Governor Wilson on Tuesday, 22nd inst., and he assured them that he will do all in his power to bring about a return of reciprocal relations between New Jersey and its neighbors.

Concrete Sign Posts for Nebraska Roads.

Because of the short life and the liability to breakage attending wooden sign posts erected on the highways, the Omaha Motor Club has designed and is using a new style

of posts, made from reinforced concrete, which appear to be giving excellent service. As the illustration shows, the posts are of gray concrete carrying a black sign of galvanized iron, with white letters and a hand pointing the way. They are eight feet high, weighing approximately 100 pounds, and are sunk two feet in the ground.

The road from Omaha to Tekamah, Neb., has been chosen for a trial installation of the signs, 31 of which were required properly to mark the 45 miles between the two towns. In order to protect them from vandals, and from the ubiquitous youngster



INDESTRUCTIBLE CONCRETE SIGN POST

who delights in using posts like this as targets for his rifle, the club has offered a standing reward of \$25 for the arrest and conviction of any one found to be tampering with or mutilating them. It is the intention of the club committee, composed of C. L. Gould, L. E. Doty, Lee Huff and W. J. Kirkland, to extend the posts to Nebraska City, a distance of 100 miles, and it is probable that other Nebraska clubs will aid in the matter and cover all important roads in the state with similar signs.

Maryland's View of Federal Aid.

Governor Crothers, of Maryland, who for some time has been in the foreground of the fight for better roads and for the national maintenance of these inter- and intra-state arteries of traffic, has caused to be published an open letter on the question of national good roads, in which he says in part:

"France has appropriated \$612,000,000 in Government aid to public highways, Amer-

ica \$14,000,000 many years ago, and this amount was only partially used and the roads and bridges made have long since fallen into decay. Millions of acres of the most fertile lands on this earth have been donated to the construction of our trans-continental railroads, and vast sums of money given to them as subsidies. Ships have been floated on Government money, and the rivers have long been pensioners of the United States Government.

"It is the vast population of our great commercial centers and overcrowded cities that demand good roads to enable the producers of this great land to supply cheaper daily the markets of the nation. Railroads are to-day crying for navigable roads as feeders to their lines of transportation and thus prevent shortage of cars and secure a steady flow of trade, consisting of farm products largely.

"Government aid in public highways improvement to-day overshadows any and all other measures before Congress. The city man and the citizens of the country should and will demand it."

Nutmeg Sunday Motoring is Safe.

Revengeful efforts to have all garages closed and all automobiling stopped in Connecticut on Sundays, by invoking the still existing blue laws forbidding secular labor, business, sport or recreation on the Sabbath, are not likely to meet with much success, according to Connecticut lawyers, as it has been found that the present governor, Simeon E. Baldwin, when he was an associate justice of the supreme court of the state, in 1895, handed down an opinion showing that an act of 1882 "was obviously intended to make traveling on Sunday no longer punishable as an offense against the law, and that of 1883 was passed to relieve from any penalty the owner or driver of vehicles used for such travel." Threats have been made by George H. Woods, of Bridgeport, chairman of the sports committee of the Gaelic League, that his organization will stop all motoring and the keeping open of garages on Sunday unless the state legislature passes laws for a more liberal Sunday. The Baldwin opinion, however, which was concurred in by the chief justice and three other associate justices, is regarded as fully covering the situation and protecting motorists and garage proprietors against successful attack on the Sunday question.

Big Bridge Will Save Tourists' Time.

By the opening of the new million-dollar bridge over the Connecticut river, between Saybrook and Lyme, which occurs today (Thursday), from half to three-quarters of an hour will be saved on the running time of automobiles en route between New York and New London, and points along the Sound. Hitherto a tedious wait for the ferry has been necessary at that point, despite which circumstance upwards of 14,000 cars were carried over last summer.

Unit Systems in Rear Axle Construction

Illustrative of the development of the automobile, which steadily is advancing toward that point where for simplicity and accessibility each part, or group of parts, will embrace a unit which may be removed for repair or replacement without the necessity of disturbing other units, the location of the change gear mechanism and the differential of shaft driven cars in the same housing, thus making of them a unit, is a step which, while slowly gaining in popularity, particularly in light car construction, nevertheless has been, and still is, the subject of numerous controversies. It is a

pendent of spring action, as differing from the location of the unit in chain driven cars where its weight is carried above the springs, new problems became apparent. In present day practice, the numbers of makes of car in which the change gear mechanism is combined as a unit with the engine and in which it is combined with the differential are very nearly equal, while the number of makes in which the gear box is a separate unit outnumbers them both almost three to one.

Despite this fact, which might perhaps be construed to serve as a clinching argu-

Which is to say, that as traction is better, the tires being more constantly in contact with the ground and not subject to the possibility of slight slippage if in going over an especially abrupt bump the wheels should leave the road and spin, the momentum thus gained and the increased power of the engine when permitted to "turn up" faster combining toward this end, tire depreciation really is less.

But there is another side to the weight question, viz., the possible effect of the momentum generated in the rear axle when the car is driven rapidly over rough roads. In theory and also in practice, this momentum is tremendous, but whereas dire results at first were predicted, and it was suggested that the whole rear system would "shake itself to pieces" or at least the fairly delicate mechanism would be deranged seriously by the constant vibration which, it was stated, also would have a deleterious effect on other parts of the car, in practice no such troubles have evinced themselves. As a matter of fact, rear axle located transmissions on the whole have given no more trouble than those of any other type, none of which is especially noted for its trouble producing proclivities.

Placing the gears in a unit with the differential, on the other hand, makes for a more equal distribution of weight, and this in turn reduces the tendency to side slip. Further than this, the removal of part of the weight from the front axle and wheels permits of more even tire wear and naturally allows of an easier steering vehicle.

From the point of the reduction of weight of component moving parts of the transmission system, the rear axle located change gear set has several advantages. In the first place, owing to the fact that the torsional strain transmitted by the drive shaft and the universals is multiplied in the gearing, both the shaft and the universals may be made lighter. Since the gearing is directly at the rear axle, the propeller shaft rotates at greater speed to transmit the same power as would be transmitted at slower speed if the engine drove the gearing direct and the propeller shaft were driven from that. In other words, it is subjected to smaller torque.

While the benefits to be derived from the actual reduction in weight alone almost are nil, other features, directly attributable to the reduction, are extremely desirable. The least of these is that the lighter shaft, being more resilient, will act more in the way of a spring drive than the heavier one, thus absorbing many of the minor shocks and jars which otherwise would be transmitted back to the engine; probably the greatest is

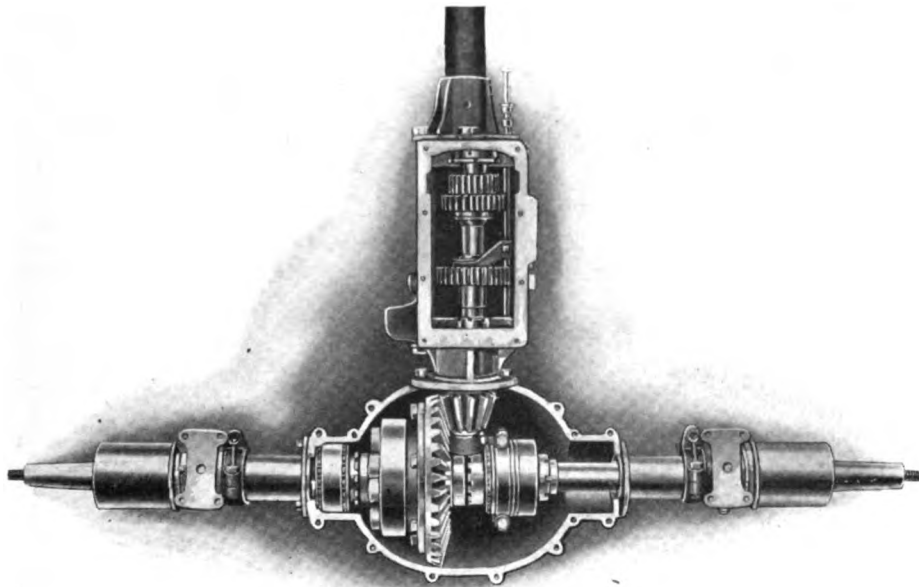


FIG. 1—GLIDE REAR AXLE CHANGE GEAR UNIT

development in sharp contrast to that of the unit power plant—each system having advantages peculiar to itself.

The combination of the change gear mechanism, or the transmission, as this part of the car is more generally though none the less erroneously known, and the differential in a single housing is not a new element in the arrangement, however. From the earliest days, manufacturers of chain-driven cars have made use of the system as obviously the best, owing to the fact that the positive maintenance of the relative positions of the shafts in the change gear set and the differential thereby is assured, and also because of the decreased cost of manufacture which is possible with the use of one housing instead of two.

But with the application of the system to shaft driven cars, the location of the unit of necessity being at the rear axle inde-

pendent against the combining of the change gear mechanism and either the engine or the differential, not a few manufacturers have come out in favor of the former, as evidenced by their late productions, and there appears a well-defined tendency in favor of the latter arrangement as well.

Probably the greatest argument which can be advanced against the system is that necessarily there is a certain amount of increased weight which is carried "unsprung"; this weight being distributed between the gears, the case and the slightly heavier rear axle which is necessary by reason of the increased load which it has to carry. But while it is claimed by advocates of other systems that the extra unsprung weight, dependent on the tires alone for the absorption of road vibrations, assists materially in tire depreciation, it is claimed by advocates of this system that the extra weight actually has the reverse effect.

that owing to the reduction in inertia of the lighter universal joints, the life of the gears which are harmed when brought together with heavy bodies rotating on the shafts, is lengthened.

again good designing coupled with good material and workmanship conquered. Trouble from this source seldom, if ever, is heard of.

The principal advantage of the system is

sion gearing in one housing, and therefore the ease of inspection of the whole, the compactness of the unit, and last but not least the comparatively low manufacturing cost, and the reason for its increasing popularity becomes apparent.

Still another point in its favor is that it tends to reduce the "drumming" of the gears, which, in certain types of separate gearset is particularly assertive and annoying. Resulting, as it does, from the reinforcement of the humming sound made by the gears by the natural resonance of the gear box, the noise is further accentuated by certain types of body. In limousine cars, the clatter at certain speeds is well-nigh deafening. When the spring suspension is interposed between the body and the gears, as in the axle mounted transmission arrangement, the nuisance naturally is abated.

Among the first of the American manufacturers to advocate the rear axle located change gear mechanism, and one of the

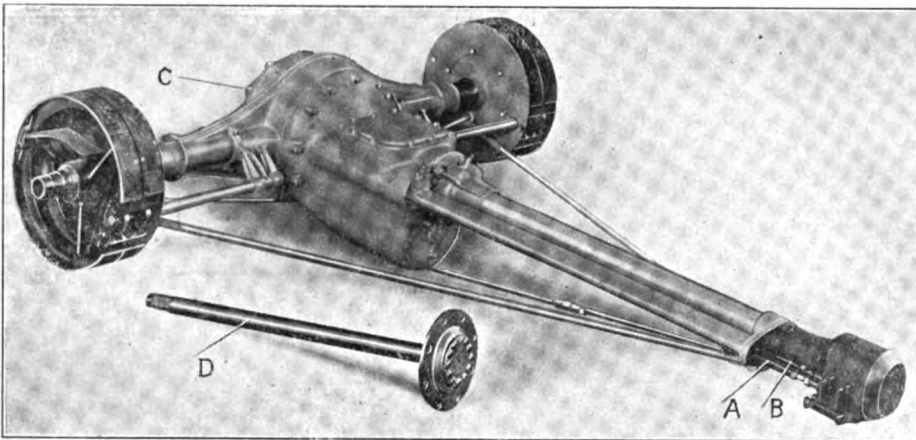


FIG. 2—MARION AXLE-MOUNTED CHANGE GEAR SET

As a matter of fact, in those cars in which the torsion rod is replaced by a torsion tube, but one universal joint is necessary, owing to the straighter drive which is possible when the transmission is located on the rear axle. Inasmuch as universal joints are notorious "eaters of power," the elimination of one of them, other things being equal, allows of greater power being delivered at the rear wheels. Incidentally, as the drive shaft is longer, and therefore has less angularity, the remaining universal joint has considerably less work to do at all times.

Even though the drive is comparatively straight, however, there is a neat little problem involved in the arrangement of the rods by means of which the gears are shifted.

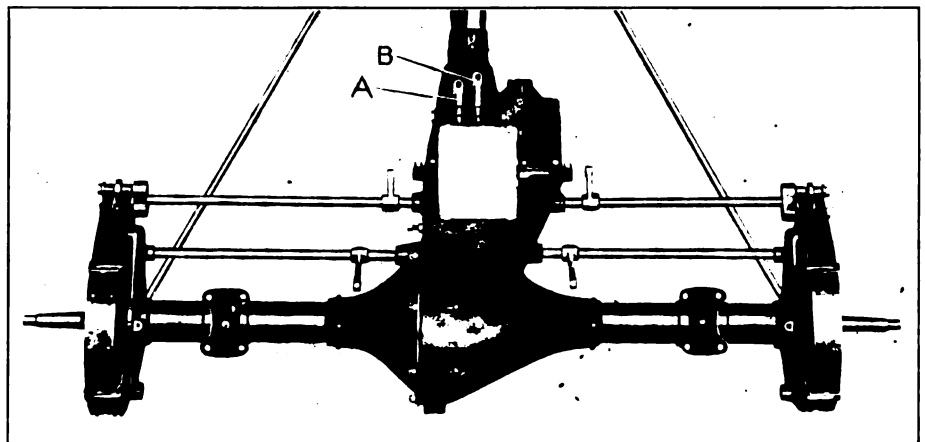


FIG. 3—EVERITT DIFFERENTIAL-CHANGE GEAR UNIT

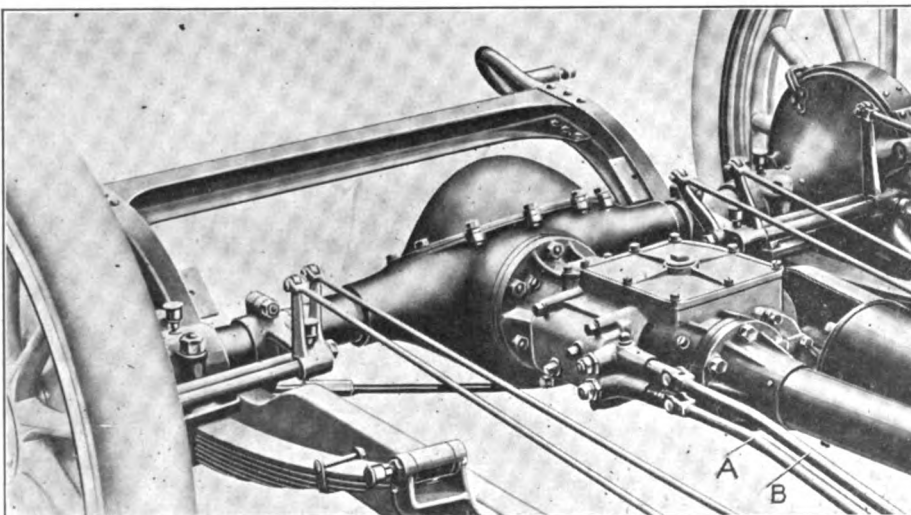


FIG. 4—REGAL UNDERSLUNG FRAME, AND AXLE UNIT

Owing to the comparatively large relative movement between the rear axle and the chassis, to which the gear shifting levers are attached, it was forecasted that these parts soon would get out of kilter, but here

that the positive maintenance of the relative positions of all the component parts is assured; no amount of frame twisting can alter the relationship. Add to which the simplicity of locating all the transmis-

most consistent users of the system since, was the Bartholomew Co., the unit as used on the late models of Glide cars being shown in Fig. 1. As may be seen in the illustration, the gears, which provide three forward speeds and reverse, are arranged vertically, which is to say that the lay shaft and its gears are below the driving shaft—an arrangement that is the one most generally chosen with this system of mounting the change gear set. The rods, by means of which the gears are shifted, likewise are arranged vertically one above the other.

The housing in this case really is two housings, one for the differential and one for the gearset, though when assembled and bolted together, the method of joining them being plainly discernible in the picture, the whole forms a compact unit. Lubrication is effected in the usual way, by means of grease, and it is a significant fact that when the cars leave the factory the housing contains sufficient grease to insure proper lubrication for a whole season. Which, briefly, sets at naught the contention that rear axle located change gear mechanisms are likely to be forgotten and thereby suffer

from lack of attention. Here, and in the majority of other cases, the necessity for continual attention is obviated.

In the Marmon rear axle and change gear set illustrated in Fig. 2, the arrangement, while similar in some respects, differs considerably in others. Thus, as in the former instance, the gears are arranged vertically, the lay shaft being below the driving shaft. The axle housing is of pressed steel and access to the differential housing is had by removing the cast aluminum cover, the top of which, designated C, is visible in the picture.

Though it has been contended that one of the disadvantages of such systems is the difficulty of getting at their "insides," the accessibility of the Marmon axle, and several others of similar pattern, goes far to prove that few other systems of mounting

described, the Everitt "30" change gear and differential unit, which is illustrated in Fig. 3, has the gears arranged horizontally, the lay shaft being beside, instead of below, the drive shaft. Three speeds forward and reverse are provided for. The housing is composed of three pressed steel parts bolted together and brazed and riveted to the axle housing and to the torsion tube. The gear shifting rods, A and B, are arranged side by side at the top of the housing, and being above the torsion tube, thus are protected by it. The removal of the cover plate allows free access to both the differential and the change gears.

Illustrated in Fig. 4, the Regal rear axle unit shows graphically the possibility of obtaining a straight-line drive, the under-slung frame and the reduced angularity of the drive shaft when the change gear set

plate at the rear of the housing, and the removal of the gear box cover allows the gears to be withdrawn or inspected when necessary. Three speeds forward and reverse are provided, the gears being arranged vertically with the gear shifting rods mounted one on each side of the torsion tube.

Insuring the entrance of the minimum amount of dust—assuming the somewhat remote possibility of its entrance at such a point—the Stutz unit, illustrated in Fig. 6, reveals a neat arrangement of the gear shifting rods, whereby but a single opening into the casing is necessary. Where the rods, A and B, enter the housing they are arranged one inside the other. Allowing of three speeds forward and reverse, the gears are arranged vertically. In this design also, the drive shaft, in which there is a single

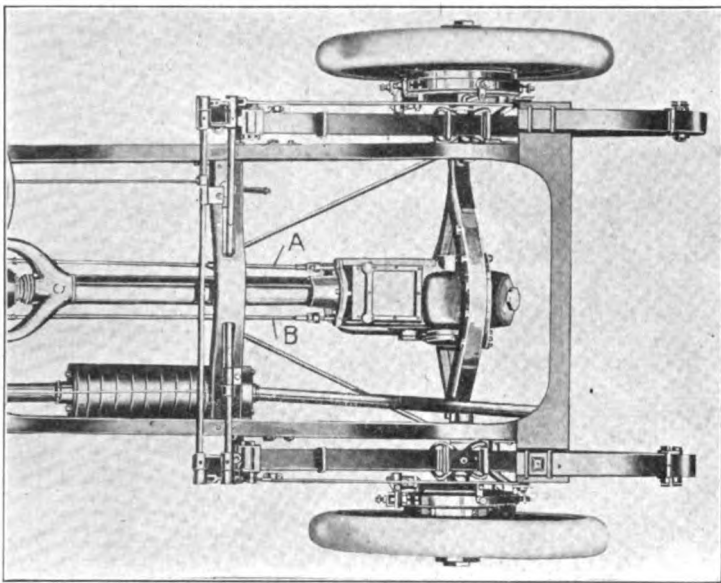


FIG. 5—STEARNS TRANSMISSION DESIGN

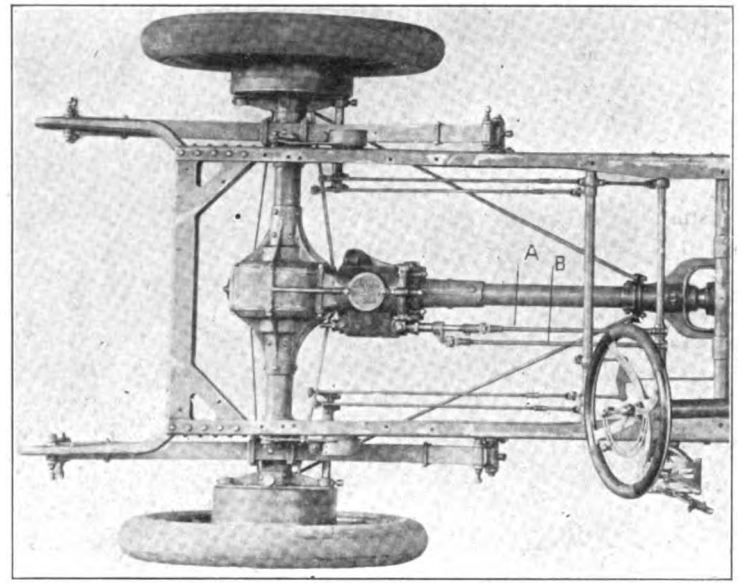


FIG. 6—ARRANGEMENT OF STUTZ UNIT

the change gear mechanism are superior to the rear axle location in this particular respect. Everything within the Marmon rear axle housing may be removed in a few minutes without the necessity of disturbing any other part of the car, or even jacking up the rear wheels. Bolted within, to the forward end of the differential housing, a steel plate with integral bearing supports for the differential also carries the pinion bearing and the rear bearing of the change gear set.

It is the removal of this plate which permits the easy and quick dismounting of both differential and gearset without disturbing the rest of the mechanism of the car other than partially withdrawing the drive axles, one of which, D, is shown in the accompanying illustration. As an added protection, the gear shifting rods, A and B, by means of which the three speeds forward and reverse are obtained, are enclosed in an oval, dust-proof housing attached to the torsion tube, the latter serving as a housing for the propeller shaft.

Differing from both of the other axles

is so mounted both assisting in the accomplishment of this result. In this design also, the gears are arranged horizontally, three speeds forward and reverse being provided. The housing is in reality two separate units which, when bolted together, as shown, form a single rigid unit. A slight variation in the arrangement of the gear shifting rods, A and B, also is apparent, the rods being placed one above the other and bent slightly to bring them over to the side of the chassis where they are connected to the gear shifting lever.

In the Stearns rear axle unit, which is illustrated in Fig. 5, a single-cast case serves as a housing for both the differential and the gearset. This housing is firmly bolted within the open truss-like portion of the forged axle, the torsion tube extending from the forward end of the transmission case to a pivoted yoke mounted on a cross member of the frame. The torsion tube encloses the propeller shaft and its one universal joint and serves as both a torsion and a radius rod. Access to the differential is gained by the removal of the

universal joint, is enclosed in a torsion tube attached to a cross member of the frame by means of a pivoted yoke, the tube performing the functions of both torsion and radius rods.

One of the little thought of features of the rear axle mounted change gear unit is the possibility of arranging for direct drive on all speeds. That the application of such a system is not as remote as at first might be supposed, is evidenced by the appearance of several change gear mechanisms in which this result is obtained. Though up to the present time none of these has made its appearance on automobiles, one of them, which also provides worm drive, has been used with some degree of success on motorcycles abroad, and it is not impossible that before a very great time some such system will be in more general use.

But even barring the possibility of obtaining a direct drive on all speeds by the use of this system, the rear axle located change gear unit undoubtedly has advantages possessed by none other, and its popularity is waxing.

"RAMBLERS" HOLD CONVENTION

**Officials and Salesmen of Kenosha Factory
Discuss Plans—Annual Gathering
Marks Organization's Progress.**

Rambler dealers, salesmen, traveling representatives and executives gathered at the factory of the Thomas B. Jeffery Co., at Kenosha, Wis., last week, for the annual convention of the sales and service organization. Sixty-five members of the local and field forces were in attendance and the three days of the convention were filled with "doings" of varied sorts, including many things in lighter vein as well as the

who have long been associated with the company. Those standing in the top row are: G. M. Berry, M. Mattson, C. D. Hagerty, A. L. Stapleton, G. R. Sutherland, Al. Reeke, E. J. Wall, A. R. Rockwell, C. S. Culp, B. F. Spencer, O. Murphy, G. H. Cox, H. F. Lantz, G. Braithwaite.

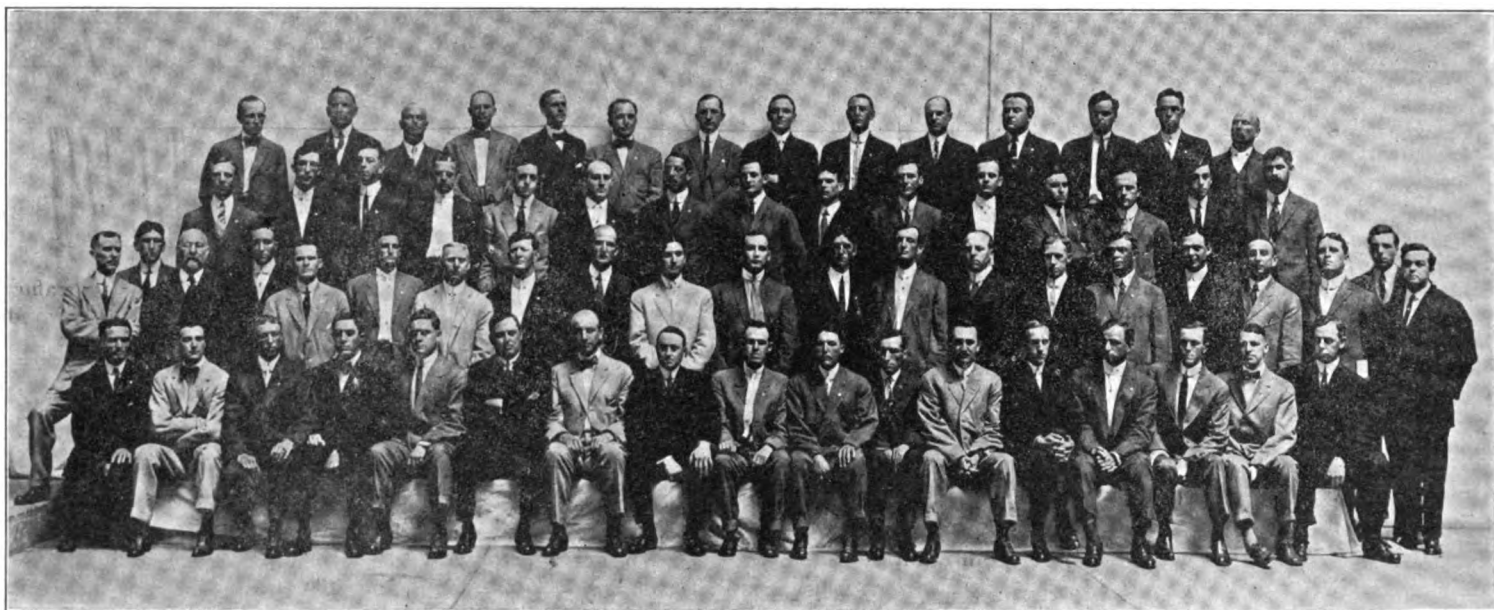
In the second row from the top are: W. F. Portwine, J. M. Gaffney, R. S. Bennett, C. Sklarek, C. A. Baker, J. K. Bond, F. E. Devlin, Gilbert Williams, F. C. Mock, J. O. McDonald, J. A. Rose, W. C. Burbank, E. S. Jordan, J. P. Zens, R. Jardine.

Those in the third row are: O. G. Formhals, E. G. Soward, H. H. Maddock, F. W. Rosche, T. D. Cobbs, Jr., G. B. Owens, H. E. Tanner, F. C. Bacon, W. S. Simonds, L. A. Poundstone, W. H. Knight, T. B.

freight car. The collision took place at a crossing, where the glare of an electric arc light prevented the chauffeur from seeing the stalled freight train, with the result that the motor car struck the freight car with full power. The framework of the automobile slipped under the truss work of the railroad car and in an instant the latter was lifted off the rails. The automobile suffered a twisted front axle, bent fender and broken lamp, but was able to proceed to the garage under its own power.

Ohio Offers Extended Warranty.

Departing from customary forms, the Ohio Motor Car Co., of Cincinnati, Ohio, is offering in connection with its cars a guarantee against defective workmanship



RAMBLER FACTORY AND FIELD FORCES GROUPED AT THEIR ANNUAL CONVENTION IN KENOSHA, WIS.

serious affairs of the set program. As always is the case with such gatherings, the occasion was one of mutual benefit, of renewed strength and confidence, of much discussion concerning organization plans and of certain disclosures as to the forthcoming product, in the latter of which the public will be permitted to share in due season, it is explained.

The new models are ready, to the extent that they are being shown to dealers, but the formal announcement of their characteristics has not been made as yet. That it will be full of interest is an expectation based on the past and also strengthened somewhat by reason of the fact that the factory force has been augmented during the past year by the addition of several well-known engineers. These include Robert Jardine, one of the older designers in the field; George Braithwaite, formerly factory manager for the Stevens-Duryea Co., and F. C. Mock, formerly assistant engineer for the Dayton Motor Car Co.

The accompanying picture shows the Rambler group on the steps of the factory and includes the faces of many men

Long, I. J. Kinnett, L. E. Rood, R. C. Chase, C. D. Dunham, C. M. LeRoux, G. D. Racine, Z. C. Elkins, H. G. Musgrave, H. P. Thompson.

The fourth and front row includes: J. W. DeCou, M. E. Lebon, E. E. Herring, W. E. Wissler, G. C. Norwood, S. S. Jenkins, I. R. Campbell, C. T. Jeffery, K. J. Leach, W. G. Schultz, H. M. McEachren, P. J. Keating, C. O. Hart, G. A. Ruckert, P. D. Carman, L. P. Kilbourne, G. N. Bliss.

Eight Makers Equipping With Klaxon.

Eight motor car makers are to include Klaxon warning signals as regular 1912 equipment, according to the Lovell-McConnell Mfg. Co., of Newark, N. J., which makes the Klaxon. The list includes Stearns, Columbia, Stoddard-Dayton, Alco, Autocar, Knox, Orson and Benz.

Automobile Derails Loaded Freight Car.

The energy of an automobile driven at high speed probably never was more forcibly illustrated than in an accident which occurred last week in Brainerd, Minn., and in which the automobile derailed a loaded

and material during "the life of the car." It covers every part except tires, rims, radiators, coils, magnetos or batteries, which are warranted by their respective manufacturers. The warranty for the car itself is in the form of a bond signed by the officers of the Ohio company, and is in effect so long as the car remains the property of the original purchaser in whose name it is issued; otherwise the liability as covered by the warranty terminates in one year.

No Room for Cars at Port Limon.

Ten blocks long and five blocks wide embraces the whole territory covered by Port Limon, Costa Rica, and there are no roads outside the city limits, but nevertheless the town boasts two automobiles, says Chester Donaldson, the American consul at that station. The machines are owned by doctors for their practice within the city limits. Donaldson does not think that the size and location of the place justify many more automobiles at present, and judging from the lack of "elbow room" in it, the average automobile manufacturer would hesitate to establish an agency there.

How Overloading the Highway Raises Haulage Costs

It is written that doctors bury their mistakes, while the errors of engineers endure to supervise their own interment; which is more or less true. Many a famous surgeon has more clients under ground than above, but who can name offhand the designer of the Quebec bridge? The fall of that half-completed structure unquestionably is the most notorious instance of "wrong treatment" of modern times. Another that, if less conspicuous, nevertheless contained as great an element of surprise to the engineering fraternity, was the Woodlawn wreck of a passenger train on the New York, New Haven & Hartford Railroad, several years ago, when a passenger train running on schedule time and at its scheduled rate, suddenly jumped the track with disastrous results.

Subsequent investigation showed that the train had been running at about 40 miles an hour when it reached the curve where the wreck occurred. It was being drawn by one of the new electric locomotives that just had gone into service within the local terminal zone. Except for that circumstance there was nothing to indicate a possible cause for the disaster. Other trains of like composition had covered the same tracks at as great or even greater speeds, time and time again. The track was shown to have been in normal condition, properly inspected, continuously used, in every way up to the rigid standards which careful railroad operation in the vicinity of a great city has found to be vitally necessary. What, then, caused the wreck?

Logical deductions would serve to indicate the seat of the difficulty almost as readily as the scientific investigation which speedily followed the wreck. The new electric locomotives, though not too heavy for the roadbed, as at first was suggested, differed from the standard steam engines in that a greater proportion of their weight was concentrated near the rails. The result was that in rounding the curve an abnormal side pressure was exerted on the outer rail, a pressure so far beyond its legitimate resisting power that it was torn away, causing a number of the following cars to be piled up in a splintered mass.

The roadbed was in proper shape and, according to prevailing ideas, without fault; the new locomotive was up to specification and its design presented no intrinsic fault. The whole trouble was that the engine was not suited to the roadbed, or to express the idea in terms of progress, the roadbed was not suited to the requirement of the engine.

The story of this particular wreck might

be used to point any number of morals ranging from religion to rhetoric, but its most relevant application is in illustration of the close relation that exists between the railroad and the rolling stock that runs on it. In modern railroad engineering practice it has become axiomatic that traffic expansion is limited both by rolling stock and trackage and that loading is limited by the condition of the roadbed.

Within the past five or six years revolutionary changes have taken place in railroad development in respect to the strengthening of the roadbeds. Heavier rails, improved methods of ballasting, stronger bridges have been necessitated by the constant increase in traffic demands. Heavier trains and especially increased train speeds have rendered tremendous outlays in this direction absolutely necessary, however unwelcome they may have been to the various boards of well padded and florid directors. A long series of wrecks, blockades and all manner of traffic delays made it apparent that a time had come when better roads were a prime necessity. Their development was indispensable to further progress, even to a bare worrying along in the trail of progress.

Here is a point where the automobile engineers seem to be displaying an inclination to lag behind the traditions of the engineering profession. Discounting "mistakes" of the sort that mark the engineer's burial, the dictates of the craft are that a design shall be developed not individually but as an element dovetailed into the whole system in which it is to operate. There was a time when automobile designs were not homogeneous in themselves, when practically every distinct group of parts, while displaying merit and efficiency in itself, was more or less a misfit as far as the remainder of the assemblage was concerned.

Happily that period has passed, but there remains in the newer field of the commercial vehicle a very evident predilection to build the motor truck as an independent unit rather than as an element in a system. The general result is very much as it was in the days before the complete unification of railroad organization, when one independent department built locomotives, another cars, a third laid track and a fourth tried to maintain an operating schedule. Harmonious working, efficient operation, profitable development, could not be brought about until it became possible to exercise an effective general supervision over the entire system; until the different branches of the great enterprise that is embodied in a transportation system were properly co-ordinated.

One difficulty in the truck industry is that certain manufacturers are so intent on building trucks that will run successfully under certain assumed conditions that they neglect to consider that when they are sold and put into service, they may be made to work under totally different conditions. There is an inclination in the first place to attempt to make one design serve too many purposes. There is also an inclination to overdo in the matter of lading. Not that the maximum capacity truck has been built, but rather that a number of makers have begun to put out vehicles which when loaded are too heavy for the roads.

Truck operating conditions and railroad operating conditions closely parallel one another, but with this difference, that whereas the limitations of the roadbed are definitely known in railway operation, and to a certain extent are susceptible of development with the demands of increased traffic, the common highway is entirely beyond the control of truck manufacturer and owner alike. Better roads are one of the certainties of the future but the highways of the present do not present the uniform conditions that are ideal for motor vehicle operation. Poor pavements may be said to be the source of high truck operating costs—and they are undeniably higher than they ought to be on the average—but highway conditions, relatively speaking, are fixed. Truck design is not.

For a long time the eyes of New York truck salesmen have been turned enviously toward a prosperous and widely advertised terminal warehouse company which had announced its intention of employing motor trucks as a means of linking up the heart of the business district with its somewhat remote but otherwise matchless plant. Such of the plans of the company in question as have been permitted to leak out from time to time have indicated an intention to make the fullest possible use of motor vehicles, while it was likewise evident that it was planned to employ its equipment in a thoroughly practical and efficient manner. Indeed the local tradesmen were keenly aware that whatever the make and type of vehicle selected for the service, considerable business stimulation was likely to result if the project was carried through successfully. It may be imagined, therefore, that the intelligence that the company had abandoned so much of its plan as related to the use of motor trucks was received with considerable disappointment.

Before giving up the idea of using trucks a thorough test was made. Four trucks, "the best that could be bought," in the estimation of the heads of the concern, were

put into regular service and their operation carefully studied. Their performance was regarded not so much in the light of an experiment to determine their fitness, as in the nature of a standardization test, whereby the complete equipment later to be purchased, was to be regulated. Yet after a trial lasting over months it was decided to make no further truck investments for the present. The trucks now in use may not be thrown out at once, but it has been decided, according to an official of the company, that the equipment will not be increased—"until Brooklyn has better streets."

"One or the other of the two larger machines has been in the repair shop most of the time," said the official, in telling of the experiment. He is a man who has given close attention to the motor truck problem from the standpoints of both user and manufacturer, by the way. "In an effort to discover the cause of the enormously high upkeep we were experiencing I studied the conditions very closely, even spending a whole day riding on one of the big machines. And I want to tell you that at the end of that day's work I was literally 'sea-sick' as a result of the pitching and rolling of that truck. It seems beyond reason to expect any mechanism to withstand the effects of such continuous pounding," he concluded.

Disappointing—very. But will this particular terminal company, with its 3,000 feet and more of water front, its 122 warehouses and its 20 miles of private railroad, offering accommodation for upwards of 1,000 freight cars, entirely abandon the plan of delivering its customers' goods in Manhattan, merely because of its failure to obtain satisfactory results with motor vehicles? Answer, No.

How, then, will it manage the transportation problem? By the use of horse-drawn trucks.

Will not the bad condition of the streets prove as much a detriment to horse haulage as it has to motor? No.

Will the company be able to carry out all its haulage requirements with horsed vehicles? Undoubtedly.

Why? Because smaller loads will be hauled and slower speeds maintained.

Truck makers regard it as a peculiar thing that teamsters of long experience, who are accustomed to encountering practically no difficulty with horse drawn trucks, should be afflicted with a mania for overloading motor trucks, and they are inclined, doubtless for good reason, to trace back most of the troubles incident to truck operation to this very cause. Yet there is nothing strange about it. So much of the excessive cost of truck operation as is chargeable to overloading may correctly be set down to lack of experience and to overconfidence in the capabilities of the engine-driven vehicle. But back of that in many cases lies the fact that the vehicle itself is

too heavy for the highway over which it is expected to work.

The effect is two-fold. In the first place it results in rapid depreciation of the truck, and the heavier the vehicle the more rapid is bound to be its rate of deterioration. In the second place, it results in rapid depreciation of the pavement, and the heavier the vehicle the greater its destructive power.

Just as the standards of roadbed equipment have been undergoing a change in railroad practice, so the standards of highway construction are undergoing a change. But in the latter instance the metamorphosis is much slower, as always must be the case where the growth of private and public works is compared. It lies within the power of the railroads to strengthen their rails and bridges as fast as traffic growth warrants the outlay; highway development must wait on the will of the people and the will of the public officials who, figuratively speaking, represent it.

By a recent ruling of Judge Trexler, of Lehigh County, Pa., it is the duty of that county to render its bridges equal to all traffic requirements. Although a certain bridge which had broken down under a motor truck loaded with two tons of flour, was sufficient for all demands when constructed, the judge held that it has become the duty of the county, since the introduction of motor trucks, to strengthen all its bridges to such an extent that they would meet the modern requirement. In that opinion he was sustained by the Supreme Court of the state, and in consequence it is likely that there will be a rapid increase in bridge building during the next few months everywhere within range of the ruling.

That attitude is exceptional. A more common, and perhaps more natural, view is that the employment of heavy trucks is an abuse of public privilege. While the makers and users of trucks raise their voices in execration of the roads, the road makers are beginning to discover something of a menace to their handiwork in the use of increasingly heavy vehicles. The difficulty really is mutual and requires adjustment. When a heavy truck rolls along leaving behind it a trail of rutted asphalt, sunken pavement, broken manhole covers, disordered street railway switches, smashed culverts, broken bridges and deeply furrowed country roads, it is not to be wondered at if complaints are uttered. Likewise it is to be expected that the vehicle will suffer as well as the road.

"We have decided not to go above five tons on any of our trucks," says another man of considerable experience with trucks who is the self-styled "largest buyer of automobiles in the world." "You know it will only be a matter of a few years before there will be legislation forbidding the use of such heavy machines. The streets simply will not stand up under the strain and it is too much to expect the public to suffer in consequence of continuous heavy vehicle

loading. Besides, the upkeep of large vehicles is bound to be exorbitant."

Weight alone is not the only objectionable feature in connection with heavy truck development, however. It is the combination of great weight and high speed that causes destruction to vehicles and highways alike. The relation between laden weight and maximum permissible speed is sadly in need of revision. Some day, possibly an absolute ratio may be fixed through the development of what engineers would term an MV² formula, that is, one in which the load limit is determined by the relation of total weight to the square of the maximum speed. So far, the judgment of the designing engineer has been relied on to fix the speeds of motor vehicles. If he has erred in running to either too great weights or too great speeds, it is because of lack of data to work on.

"No one has any idea how great the wear and tear of speed is on a commercial wagon," a well known truck engineer is quoted as saying. "They complain about how fast a motor truck wears out as compared with their old horse-drawn trucks and tell about the cost of upkeep, but not one of them ever looked into the reasons and realizes that speed is the main element of the 'pace that kills.'"

After an experience with semi-trailers, that is, with former horse-drawn wagons in which the original front wheels had been replaced with a four-wheeled motor truck or tractor, this authority has discovered that the trailer part of the unit is apt to prove exceedingly short lived. Hence his conclusion that successful semi-trailer practice demands the use of special construction from end to end. In other words, he concludes that there is nothing inherent to the self-propelled vehicle which should render it less durable than one that is made to be drawn; its short life must, therefore, arise from the heavy loads that it is called upon to bear and from the high speeds at which it is driven.

"It stands to reason," he declares, "that a cart built to travel behind a team of walking horses at a gait of about 2½ miles an hour is not strong enough to travel over rough pavements at the motor rate of say 10 miles. It would rack such a wagon to pieces, and I don't believe that it would last on the average 30 days under the strain sustained by a motor truck. If they want speed they must realize that it is bound to be procurable at the cost of wear and tear. What I object to is their expectation that a motor truck will do the new work and last as long as a slow-moving horse-drawn truck did."

Yet the advent of the motor truck has been acclaimed as the beginning of an era of accelerated traffic. So it is, but perhaps there is a tendency on the part of the public and the industry, too, to expect too much all at once.

An Englishman returning to London af-

ter a fifteen years' absence was moved to great enthusiasm.

"I am astounded at the enormous access of speed to London traffic particularly, and to transport generally, that the self-propelled vehicle has brought about," he vociferated. "Take it from me that the swiftest city in the world today is undoubtedly London, and my belief is that the advent of the motor vehicle has not only built up the pace of the transport and the general conveyance, but has infused a spirit and dash into general business affairs that is something remarkable. At the present time, business in the great American centers is lethargic, compared with what one sees here.

"I am very much surprised, however, that nothing has been done to replace the horse vehicle. The facilities offered by the superb roads of England keep you people on this side at the top notch for trying to produce a vehicle to replace the locomotive, and you are neglecting to replace the horse. You know that prime cost and upkeep squares with increases of speeds, and with a speed that is from three to four times the speed of the horse you are doing the best work to recoup the cost of a comparatively expensive vehicle in make and upkeep.

"I have always a sneaking regard for the old governed vehicle that could not exceed 14 miles an hour, that could run, if necessary, on steel tires, and that could travel a good many thousand miles without costing an income to maintain. Of course, this applies to either three- or four-passenger vehicles, or to light loads of from 10 to 15 cwt.; my opinion is that the next developments will be the production of vehicles that will absolutely replace the village butcher's cart, and the well-to-do man's governess cart, which will not go more than 10 or 12 miles an hour, and which will be indifferent to the way their wheels are shod. I am sure it is a future manufacturer's ideal to reach the inevitable stage of the entire abolishment of the horse. These types will do it. Such vehicles can be made and sold at a profit at £80; and they will have no more expensive upkeep than a horse and vehicle to pay.

"When everyone in England was carried away with the idea of making five-ton and six-ton motor lorries, Dan Simpson and I practically stood alone in advocating the one-ton and two-ton loads that today are responsible for the success which the commercial vehicle has assumed; thus developing the fact that a light load carried safely and at a fair speed is a more commercial solution of the proposition of commercial self-propelled trucks than are heavy loads carried at very slow speeds."

A fifteen-year absentee from New York or any other metropolis probably would experience some of the same feelings and might exhibit the same enthusiasm. It is wonderfully inspiring, this speeding up of traffic, with all that it implies of business expedition, economy and great accomplish-

ment. At the same time there is more than a chance that the very weight of inspiration may carry the automobile industry and the business world too far before the natural reaction to stable types shall have set in, and that the lesson involved may prove unduly expensive.

When a truck builder concentrates the bulk of the useful load of his product on the rear wheels, as is common practice in Europe just now, it is a tacit admission that steering, and the protection of the power plant cannot satisfactorily be accomplished by overloading the front of the machine. To increase its capacity the designer has recourse to the expedient of loading up the rear axle. When a truck builder hooks on a semi-trailer on the wheels of which from a third to a half of the useful load is borne, it amounts to an admission that he cannot make an efficient four-wheeled unit to carry the burden. Yet in European truck practice—in which, by the way, the builder of rubber tires frequently is relieved of an admittedly staggering problem by the use of steel bands on the wheels—truck speeds are reduced to a mere crawl. With better highways than America can boast, heavier loads undoubtedly are carried with far greater economy.

Even so, the European builders do not have to withstand the demand for high speeds that Americans require. The truck operators of this country apparently have come to expect a five-ton truck to run nearly as fast as a three-ton vehicle, and a ten-ton truck to run at speeds that would be destructive to a vehicle of half that capacity. It is a product of the American fault of haste, perhaps. Truck builders deplore the tendency, as they do that of overloading. But it is to be observed that no truck will run faster than it is geared to go and the spectacle of a seven- or eight-ton load of coal being whisked through a busy street at speeds verging close on the legal limit for pleasure cars, is one that cannot be charged up entirely to the mistaken judgment of the operator nor to the recklessness of his driver.

What is required is definite knowledge as to the maximum practicable limits of both weight and speed; when, for example, it would pay in terms of total cost per unit of haul to substitute two half-sized trucks for one full-sized one. Or, to put it another way, the industry is yet to learn what are the profitable maximum axle loadings for successive rates of speed. Once those figures have been learned, even approximately, the remaining problem will prove easy enough of solution.

Given a maximum loading capacity for a given speed, it is possible to increase actual haulage capacity by increasing the number of vehicles, by adopting semi-trailer practice, by the employment of six-wheeled vehicles and finally by the use of trailers and even road trains. There is an exact and limited field of usefulness for

each class of equipment, none the less exact because the determination of those limits is a task as yet unperformed. There is absolutely no limit to the size and carrying capacity to which motor truck building can be applied, but there is a limit to which it can be applied profitably. As loads increase and speeds increase, so does depreciation, both of the vehicles and the roads. Not only that, but above certain, at present undetermined, limits, increases of wheel load involve increased wheel penetration to a degree that raises traction resistance to a prohibitive point.

It has frequently been pointed out that truck equipment must be made suitable to the service for which it is to be employed; that the determination of load-units, speeds, gearing and the number of vehicles in a given installation, must be carried out in accordance with the nature of the business and also with an eye to local topography. It is high time that the problem be carried a step further and that the real economy of the loading problem be worked out with reference to specific highway conditions. Automobile engineers must consider the relation of the vehicle to the roadbed as carefully as do railroad engineers, and for exactly similar reasons.

The Cooling of Trucks in Warm Weather.

Despite the provision of large cooling surfaces on the radiators of commercial vehicles, it is observed that many drivers find that good results are obtained when the sides of the bonnet are removed during extremely hot weather, or the doors left open. While there is no particular objection to this expedient, save the esthetic one—supposing that it really does any good—it would be a better plan to increase the speed of the fan when special cooling facilities are required. In most cases the substitution of a larger driving pulley on the end of the crank shaft and a new belt are all that is required to accomplish the desired end.

DeDion to Produce a Smaller "Eight."

Having experienced considerable success with its 35 horsepower, eight-cylinder V-motor, the DeDion company, of France, has announced its intention of producing a similar model of even smaller power for the forthcoming fall. The new engine will have cylinder dimensions of approximately $2\frac{3}{4} \times 5\frac{1}{2}$ inches bore and stroke, with a rating of 24 horsepower.

Chain Maintenance Saves Power Losses.

Careful motor truck drivers are learning to pay close attention to the condition of the driving chains. While chain drive, when in good order, provides one of the most economical forms of transmission known, the amount of power absorbed when the links are clogged with dirt or when the sprockets are out of line is almost beyond belief.

TWELVE MODELS FOR SPEEDWELL

Varying Bodies Applied to the One 50 Horsepower Chassis—Details of the 1912 Offerings.

To the Speedwell Motor Car Co., of Dayton, Ohio, belongs the distinction of having developed a design of sufficient stability to warrant its continuance from year to year. Not that the distinction is alto-

gether a rarity in the industry, but rather that the number of manufacturers who succeed in pursuing such a policy is sufficiently small to warrant calling attention to their position. By its new announcement the Speedwell company declares a practical renewal of its entire line. As heretofore, this includes no less than a dozen different models, all of which share in common the properties of a single 50 horsepower chassis.

As far as mechanical changes in the construction of the mechanism are concerned, they are limited, practically speaking, to a slight increase in the diameters of the valve stems and valve stem guides, and to the introduction of larger shafts and non-adjustable annular ball bearings in the gearset. Such other alterations as have been carried out are wholly in the nature of detailed refinements.

One of the effective models of the new line is the semi-racer equipped with a small tonneau, which is shown in one of the accompanying illustrations. The machine has the straight-line style of body, with hooded dash and full doors, that is found on all modern touring cars, but in low seating arrangement, large mud-guards and general rakishness, has just the suggestion of stability under high-speed running conditions that is desired by motorists who drive with reference to the "high spots" only.

The torpedo model, the latest edition of

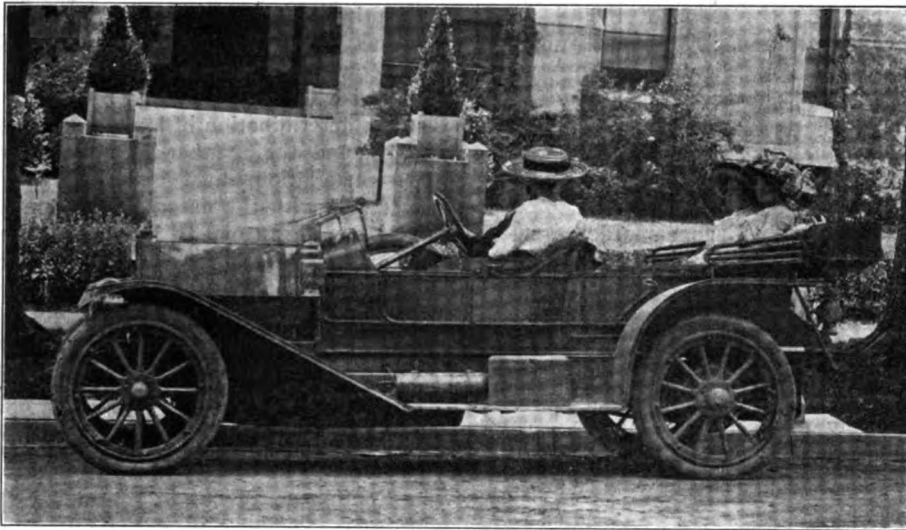
which also is depicted, is distinguished by unusually high sides, a straight-line body effect, and a sloping bonnet which serves to render the extreme height of the sides less conspicuous than it otherwise would be. The entire line ranges from the two-passenger roadster and distinctive three-passenger "duck-boat" model up to the seven-passenger touring and limousine models. A noteworthy type is the so-called "Cruiser," which is an elaborated four-passenger touring machine, built with

in connection with double-jointed shaft drive and a special form of full-floating axle in which a one-piece drawn steel housing supports the dead weight of the chassis and houses the moving parts. All wheels, and even the steering pivots, are mounted on Timken roller bearings. Unusually large braking surface is provided, the total area working out a proportion of one square inch of area for every seven pounds weight.

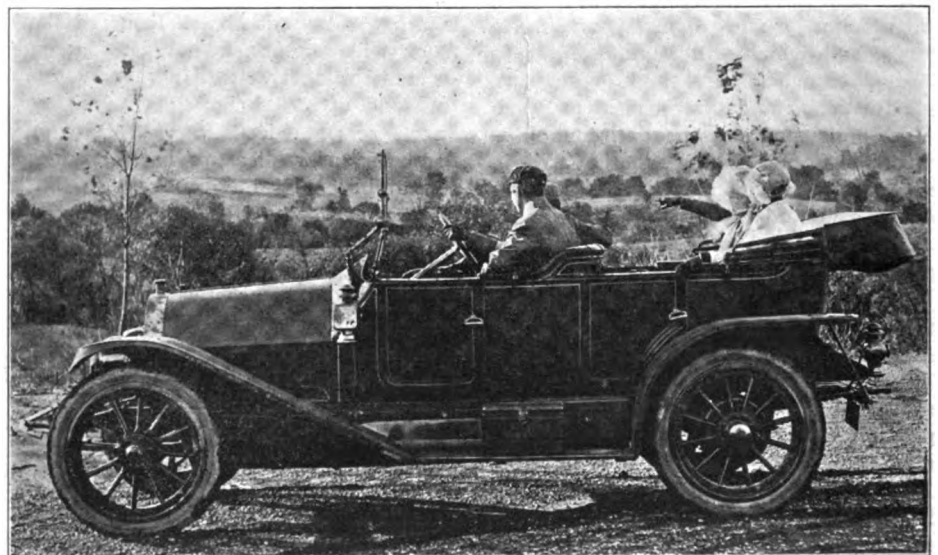
While electric lighting is not standard equipment, the usual oil and gas lamps being regularly provided, special provision is made for the adoption of the more modern system at the option of the purchaser, the Speedwell company having been one of the first to establish a regular mounting and driving arrangement to render the installation of a lighting dynamo a relatively simple matter. Demountable rims of Firestone make, tonneau fittings, tools, lamps, gas tank and horn, are items of stock equipment. On the Cruiser model, a top and windshield, as well as rear shock absorbers, are added to the standard outfit.

Indirect Speed Effects of "Safe-Guards."

Making it plain that there is considerably more to the "bumper" proposition than might casually appear, a handsome booklet concerning the Conover "safe-guard" has been issued by the Lovell-McConnell Mfg. Co., of Newark, N. J. One of the interesting points brought out is that in addition to the protection such a device affords the car, the lamps, the motorist and the pedestrian, it makes safe a higher average speed for motor trucks in congested traffic than is otherwise possible. Emphasis is placed



THE SPEEDWELL SPECIAL—A SEMI-RACER WITH SMALL TONNEAU



NEW SPEEDWELL TORPEDO FOUR-PASSENGER TOURING CAR

tern, with 5 x 5 inch cylinders, cast in L-pattern, the valves thus being located on the same side. Bosch dual ignition is used, as is a force-feed lubricating system in which much confidence is placed. A three-speed selective sliding gearset is employed

on the guarantee that "if any part of the Conover safe-guard—defective or damaged through carelessness, collision or abuse—is returned within two years from date of factory tag, it will be replaced entirely free of charge."

ESTABLISHING NEW BODY STYLES

Details of Stoddard-Dayton Designs Reveal
Ingenious Features—Novel Devices
Add to Engine Efficiency.

Affording additional particulars as to the nature of the distinctive new features which have been embodied in the new Stoddard-Dayton cars, the full details of the line, which just have been issued by the United

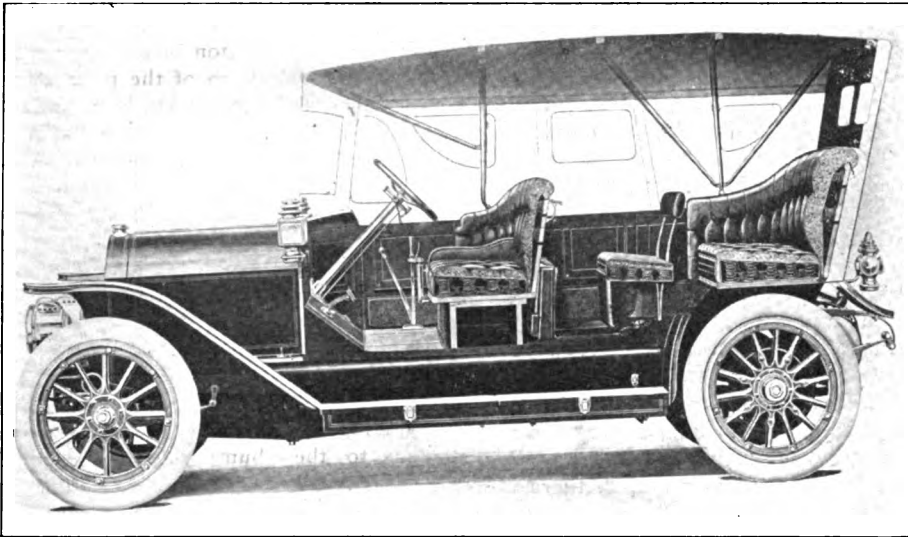
equal comfort to persons who are either extraordinarily long or extraordinarily short of limb, the exceedingly simple device of rendering the seat frame or double bucket moveable has been resorted to. As the accompanying skeletonized view plainly indicates, the seat proper is considerably wider than the supporting frame work or box. The seat being formed to a degree independent of the high sides of the body, and suitable means of attachment between seat and base provided, it follows that it

cars. Among them, the runabout type, which is applied to several of the five chassis which complete the line, is distinguished by a novel storage compartment which is worked into the body structure behind the seat in such a way as to be thoroughly accessible, despite the circumstance that the rear deck is equipped with a cylindrical gasoline tank, in the rear of which a spare tire carrier is mounted.

To accomplish the desired result, the entrance to the compartment, which is of sufficient size to accommodate several full-grown suit cases, is through the rear of the seat. One of the accompanying pictures shows the method of construction besides illustrating the appearance, both external and internal, of the machine. To gain access to the space it is only necessary to tip forward the seat back, thereby opening the door to the compartment. To effect this, it is also necessary to tip forward the small goggle and map box, which is handily contrived to form the division between the two seats.

As in the past, the arrangement of the enclosed cars has been given considerable thought, the result being the development of an inside-driven coupe that is equally accessible from either side. The body lines chosen for the purpose suggest those of the extension brougham, the door being in the center of the car. This circumstance, coupled with the fact that the seat is extended a trifle forward of the door, enables an ample entrance to be effected behind the steering wheel, which is mounted on the right side of the vehicle.

Another of the enclosed bodies which is decidedly striking in its way, is the new seven-passenger limousine designed for the Special chassis, which is described as being equipped with "half" front doors. The front portion of the machine, on this ac-

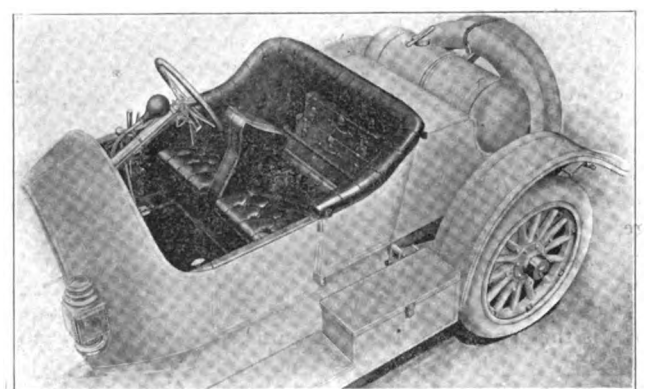
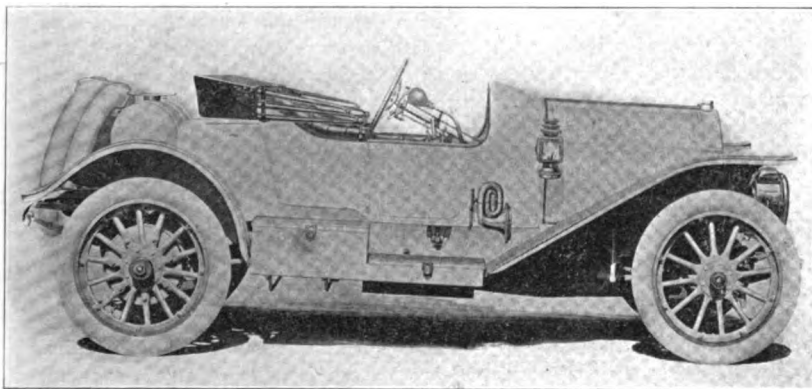


SKELETONIZED VIEW SHOWING STODDARD-DAYTON ADJUSTABLE SEAT DESIGN

States Motor Co., for the Dayton Motor Car Co., of Dayton, Ohio, which is one of its components, indicate unusual attention to minor structural points. While the development of a Knight motor in six-cylinder form, as told in last week's announcements, is by far the most striking feature of the new product, it is by no means the only one which is worthy of special atten-

tion. Perhaps of equal interest to the average motorist is the innovation in the way of adjustable front seats, which has been introduced in the Knight, Special and Saybrook models, which are the three of greatest power and the most pretentious of the line.

is a comparatively simple matter to alter the position of the seat to the extent of varying the distance between the front edge of the cushion and the dash. The same view also indicates the liberal design of upholstery, showing the location and depth of the cushion springs, as well as the general scheme of stuffing and tufting. The extra tonneau seats, it will be



STODDARD-DAYTON COMPARTMENT TORPEDO AND ENTRANCE TO LIBERAL LUGGAGE SPACE

tion. Perhaps of equal interest to the average motorist is the innovation in the way of adjustable front seats, which has been introduced in the Knight, Special and Saybrook models, which are the three of greatest power and the most pretentious of the line.

In order to render the front seats of

observed, are arranged to fold down against the back of the front seat, leaving the floor perfectly level and unencumbered with rods, supports or other mechanical parts.

Several other of the new bodies are possessed of ingenious features, as well as those which are applied to the three large

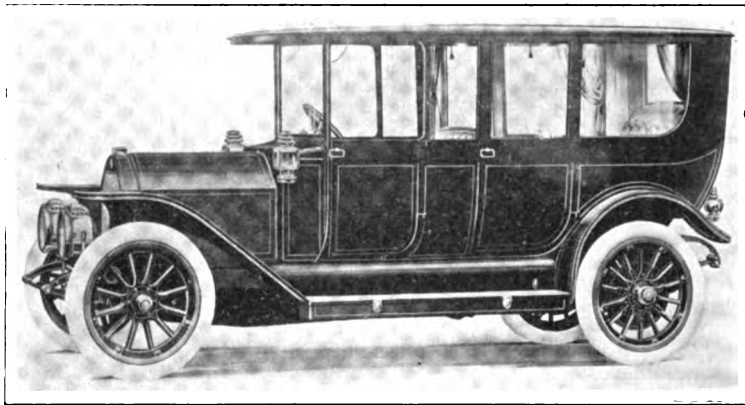
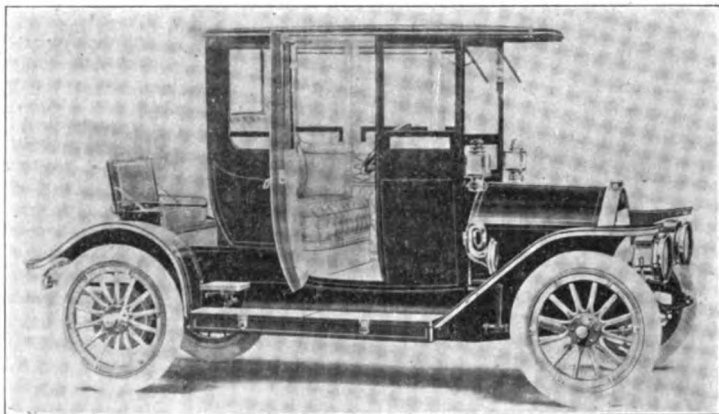
count, is really only semi-enclosed, but owing to the manner in which the outline of the vehicle has been drawn, the effect is almost precisely the same as that obtained with the fully-enclosed, or double type of limousine.

In connection with the mechanical details of the line, the construction of the new

Knight motor is remarkable in that in addition to being the first six-cylinder engine of sleeve-valve class to be built in this country, it also is one of the first of its class to be built with its cylinders cast in groups of three. With the external simplicity of the Knight type, this construction results in an exceedingly "clean" engine. The accompanying illustration shows

but which has now been subjected to several improvements. A simple form of gear pump lubrication is provided, which embodies a single-line delivery to a header or manifold, from which the lubricant is distributed to all crankshaft, camshaft and commutator bearings in proper amounts. As the speed of the pump varies with the speed of the motor, it follows that the rate

The effect secured is much the same as that employed in the blast pipe of a locomotive to secure a draught for the fire under the boiler. As each cylinder discharges its exhaust contents into the manifold, the gas rushes out of the nozzle orifice with sufficient violence to create a partial vacuum in its immediate vicinity. The succeeding cylinder to fire discharges its



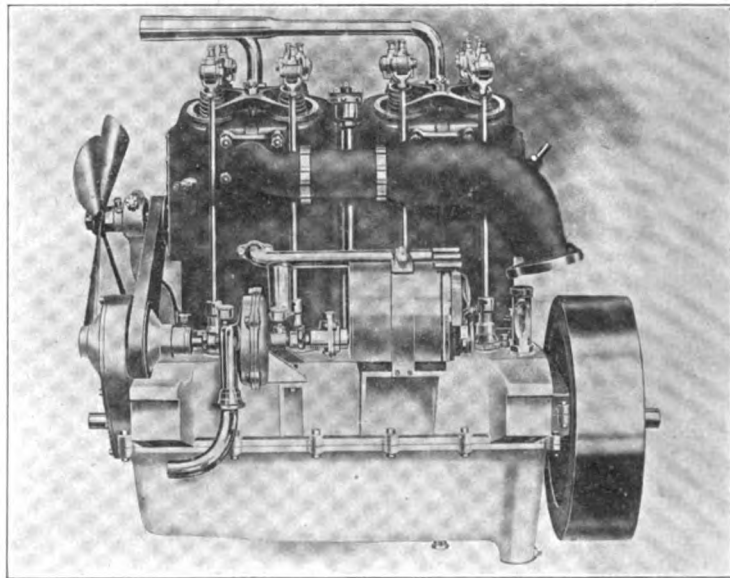
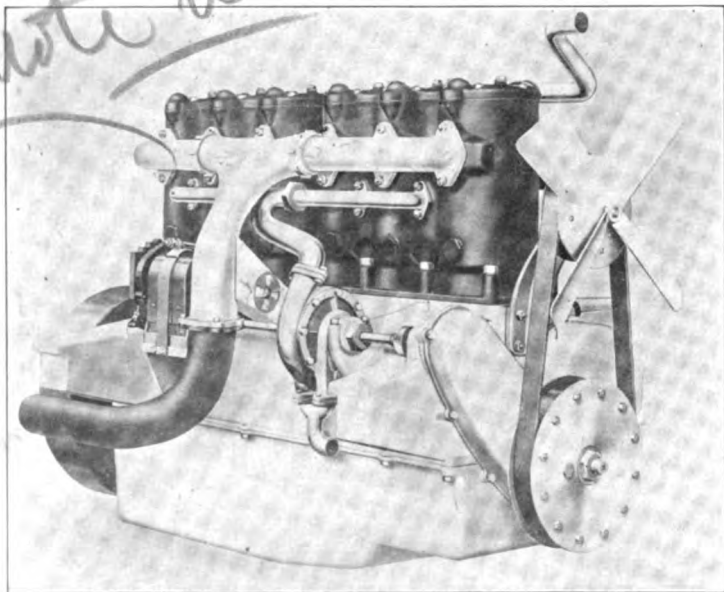
EASY ENTRANCE TO STODDARD-DAYTON COUPE AND THE "SPECIAL" LIMOUSINE WITH HALF FRONT DOORS

the exhaust side, which is absolutely stripped of all external attachments, saving only the exhaust and water manifolds, the former having long, sweeping bends, and the latter connecting directly to the centrifugal pump, which is on the auxiliary line shaft. The magneto, which is carried on a bracket at the front end of the motor, is driven by the same shaft motion for

of oil feed is closely proportioned to the needs of the engine. For varying the rate of flow, when adjustment to meet unusual running conditions is required, there is a regulating device mounted on the outside of the crank case in an accessible position.

Another of the new engine features is a special form of exhaust manifold which is designed with a view to expediting the

exhaust into an atmosphere of lower pressure than the outer air, therefore, as a result of which its outflow is more rapid than otherwise would be the case. The same action alternately developed in each of the cylinders, results in literally "pulling" out the contents of each, and is particularly effective in removing the last portion of the exhaust during the brief instant of practi-



EXHAUST SIDE OF STODDARD-DAYTON-KNIGHT "SIX" AND THE VALVE-IN-HEAD TYPE ENGINE

which is derived from the crank shaft by the aid of a silent chain, as in all Knight engines. The hot-air intake for the carburettor and the mounting of the cooling fan are other details of interest.

The standard form of Stoddard-Dayton engine, which is used on the Special and Saybrook models, is one that has given good service in former models of the line,

movement of the waste gases and is thought to be of material assistance in clearing the cylinders. For this purpose, the connections from the individual cylinders, instead of being coupled directly to an open header, are joined to separate chambers, each of which terminates in a nozzle, the four nozzles of the different cylinder connections being concentric.

cally no piston movement, just prior to the closing of the valve.

The complete line consists of the Knight, Special, Saybrook, Stratford and Savoy models, the first-named being the Knight-engined six-cylinder model, the remainder being of four-cylinder construction and of 58, 48, 38 and 28 horsepower, respectively—the last two equipped with L-type motors.

ADJUSTING THE ARTILLERY WHEEL

Problems Presented by Shrinking of the Wood—Several Methods of Overcoming the Difficulty.

Practically the only automobile component that would seem to have been inherited without material change from the days of carriage history is the wheel. Yet even wheel construction has undergone important changes, though not such as appear to the eye of the casual observer. Improved methods of manufacture principally and a few changes in design have made it possible to continue the use of the wood structure in the face of enormous increases in load and even with the addition of the heavy driving stresses. With the development of the heavy commercial vehicle, however, the wheel problem is receiving renewed attention at the hands of the designers. Likewise the owner and operator finds that he must give the wheels an amount of inspection and adjustment which hitherto has not been required. Indeed, granted the proper instruction of operators in the care of wheels and it is quite likely that difficulties with the running gear would be measurably reduced even without any alterations in construction.

Despite the use of kiln-dried wood and the application of most thorough manufacturing processes the fact remains that wood wheels continue to "dry out" during the hot midsummer weather with more or less disastrous results. It also follows that because of the heavier loads which must be borne, the loosening of commercial vehicle wheels is a more serious matter than the corresponding effect when manifest in the lighter pleasure cars. In the latter it frequently happens that about the only noticeable effect is the chipping of the paint around the hub plates, showing that a certain amount of working between the spokes is taking place. With truck wheels, on the other hand, even an almost unnoticeable amount of lost motion soon may develop into a dangerous weakness, as is indicated by the creaking and groaning of the structure.

As in the days of the horse and buggy, which, in some sections of the country are fast being forgotten, the source of the difficulty is a certain small percentage of moisture which is present in the wood at the time the wheel is made, and which gradually is absorbed by the atmosphere following long periods of dry weather. The immediate result is a shrinkage of the wood, which not even a thorough paint protection can avert, the reason being that the paint film is very likely to be broken at the joints, owing to the yielding of the wheel to heavy strains, such fissures being the probable ultimate cause of the looseness.

The old-time remedy for a rattling wheel was to stand it in water long enough for the wood to swell—at best but a temporary expedient. When the shrinkage had progressed so far that frequent soakings were insufficient to keep it "tight," it became necessary to reset the tire, thereby drawing the entire wheel structure into closer adjustment. Neither of these processes being wholly practicable of application to automobile wheels, it follows that the difficulty may become even more troublesome if the wheel is neglected once it begins to show signs of looseness.

Fortunately one remedy presents itself which is inherent to the artillery type of construction universally employed in motor vehicle wheel construction. That is the setting up of the hub plates. This has the effect of tightening the wheel in the center, thereby taking up any side play and restoring it to truth. It does not effect a circumferential adjustment, however, and therefore the adjustment should not be too long delayed. Looseness of the spokes at once is revealed by the chipping of the paint around the hub plates, as already indicated, and as looseness invariably is accompanied by working of the parts under load, it follows that once the paint has begun to go the hub bolts should be tightened without delay and the broken paint properly patched to exclude moisture and prevent disintegration. "Working" of the spokes inevitably means wear and further looseness and if the hub is neglected it will not be long before the outer ends of the spokes begin to loosen in the felloe. With the automobile wheel this difficulty is beyond the practical remedy.

It is to be observed that as between the artillery and the carriage type of wheels there is this important point of structural difference, that whereas the former is tightened from the hub, the latter is drawn inward from the felloe by the resetting of the tire. A carriage wheel, the spokes of which have worked loose in the hub is about as difficult a structure to restore to complete efficiency as an artillery wheel, the spokes of which have become loose in the felloe. For the artillery wheel fitted with a flat felloe band, such as is employed with certain types of demountable rim and also of the sort required by the new standard specifications of the Society of Automobile Engineers for solid tires, of course the resetting of the band is a possible, though difficult and expensive possibility. As practically all need of such renewal may be obviated by keeping the hub plates tight, it follows that that care becomes one of the most important elements in vehicle upkeep.

Generally speaking there is but one point to be observed in performing the work, namely that of maintaining uniform tension on the bolts, as otherwise the wheel may be "thrown out" on the side of greatest tension. Where a driving sprocket is carried by the hub bolts it is equally important

to see that the sprocket is not drawn out of truth in the process, and also to make sure that the studs have not become loose in the wheel. Should this have occurred it may be necessary to replace them with larger ones, or to bush out the holes.

In rare cases where the repair has been too long delayed, so that the spokes have loosened circumferentially, it is possible to effect an adjustment by inserting thin iron wedges between the spokes and thus setting them up. In doing this, however, it is necessary to work with extreme care, driving all the wedges at the same time by turning the wheel and distributing a uniform number of blows among the wedges. Otherwise there is danger of bringing a bending strain on some of the spokes at the point of attachment to the felloe.

As a precaution in extremely dry weather, some authorities advise hanging wet bagging over the wheels when the vehicle is left standing in the garage over night; this expedient, together with frequent washing, being thought sufficient to prevent the hub from drying out. As a matter of fact a well-made wheel should not require such treatment, particularly if the precautions of keeping the hub tight and the wood well painted at the joints, be rigidly observed.

Practically the only striking modification in wood wheel construction that has been introduced in heavy vehicle work is that of a British inventor, who has produced an adjustable wheel so designed that it is assembled within the felloe and rim and expanded outwardly, the rim not being shrunk on in the usual manner. Wheels of this type may be readjusted by wedging at any time, and are said to have given good service. No less than 700 such wheels are reported to be in use by the London General Omnibus Co. Up to this time, however, they have not become known in this country, nor is their fame by any means universal abroad.

Utilizing Hacksaw Blades for Rasps.

To produce a rough and ready rasp, useful in a variety of ways while doing odd jobs about the car, someone has suggested the utilization of broken hacksaw blades. To form the rasp all that is necessary is to fasten six or seven blades together by slipping a small bolt through the eyes in the "good" ends, the broken ends being bound together with tire tape, which is wrapped around a sufficient number of times to form a convenient handle.

Why Gasolene Should Be Turned Off.

As a possible method of reducing fuel consumption it has been suggested that when the car is to be left standing for a considerable length of time it is wise to turn off the gasolene at the tank. While the purpose of the procedure is to prevent the evaporation of gasolene through the carburetter, it has an additional advantage in the measure of safety which results in case of fire.

AUTOMOBILES "STARVED" IN QUITO

Disconcerting Effects of High Altitude on Motor Cars—Why Special Carbureting Systems Are Needed.

A city boasting about sixty automobiles, not one of which may be said to work in an entirely satisfactory manner, forms the basic allusion of a discussion of certain extraordinary operating requirements that has been going the rounds of the scientific and technical press abroad and has just reached this country. It is not the case that the city in question, which is Quito, the capital of Ecuador, has, as might be supposed, been afflicted with the introduction of a large number of cars of poor design, but rather that the motor vehicles there in use, which may be supposed to be fully up to the average, are not suited to the unusual climatic conditions which prevail.

"Quito is at an altitude of 9,000 feet," says the Literary Digest in one of its composite articles derived from foreign sources, "and is on so abrupt an elevation that when the traveler goes a little way beyond it he descends far toward the plain. A trip of any distance means a descent of three or four thousand feet. The result is that Quito, which has about sixty automobiles, has not one that works well; if they are adjusted so as to run properly in the city, they have a very small radius of action. Besides, as water boils at 187 degrees Fahr., and as the sun is often so hot as to roast eggs in the open air, motors are quickly stopped by overheating.

"Dwellers on the lower levels around Quito have other troubles to deal with, such as the extraordinary range of firearms discharged in the city above, . . . the propagation of sound to great distances (military music being heard five or six miles, and striking clocks thirty to thirty-five miles). Barometers seem indifferent to meteorological variations. A 24 horsepower automobile climbing to the heights refuses 8 per cent grades, and has to be pushed up by the passengers. The lamps go out from lack of oxygen unless a large hole is made around the wick.

"Practically it is necessary, in these automobiles, to increase the size of the radiator and to cool it by means of a powerful ventilator. The motor must be provided with special gear to climb hills. And, above all, to assure at every altitude a proper composition of the explosive mixture fed to the motor, a carbureting system is needed that will regulate the admission of air and gasoline according to the atmospheric pressure, or, more simply, a combination of several carbureters, differently regulated, which may be put into service by the chauffeur in succession, according to the indications of a portable barometer."

Principally, of course, the difficulty is one of carburation, the lower the barometer the smaller the charge induced during each suction stroke. The effect, which is familiar enough to those who have had experience in mountain-climbing, is thus explained:

"The air being rarefied, the mass of the detonating mixture that is drawn in and then acts on the piston is smaller than at sea-level. It may be said that in an explosion motor the power developed is proportional to the pressure indicated by the barometer; at 18,000 feet the barometer falls to half its normal height (or to about 15 inches), and an automobile or aeroplane motor will give only half its normal power. Again, at great altitudes, water boils below 212 degrees; it evaporates and does not stay in the radiator; the cylinders thus run the risk of overheating."

In a general way, the motor in high altitudes is "starved" for lack of oxygen, very much as a human being is affected under similar circumstances. On this account the term "mountain-sickness" has been applied to the loss of power in a motor in the high hills. The modification of the mixture to suit the special requirements, through the application of special carburetter adjustments, as operators in mountainous regions are forced to do, however, is only a partial remedy. Since the density of the air is less than at lower altitudes, it follows that the compression pressure will be lower by a corresponding amount. Therefore to obtain equally good results in high altitudes, the clearance volume of the cylinder should be decreased in addition to the other modifications that commonly are employed, such as increasing the radiator capacity and altering the mixture. This, naturally, is a permanent expedient.

Turkey Spending \$8,000,000 on Roads.

With a certainty of subsequent effect involving improved conditions for the use of motor cars, Turkey is now paying great attention to the construction and repair of roads. In telling of what is being done, American Consul General G. Bie Ravndal, at Constantinople, says:

"Up to within the last two years the roads were noted for their wretched condition and lack of repairs. There was no system of regular road building. When the constitution was declared, about three years ago, the minister of public works caused a survey to be made of the roads of the country. Recommendations were submitted to parliament, which voted \$8,325,345.60 for the construction of about 6,214 miles of roads in the Empire. Of this mileage, two-thirds are old roads to be repaired, and the balance are new roads. The amount of money appropriated is very inadequate, and it is estimated that twice the amount of money will be required for the successful completion of the roads. The roadbed is prepared for a width of 20 feet, and from six to eight inches of crushed stone is laid about 12 feet wide, the top surface being

about three inches of sand. The maximum grade allowed by contract is 5 per cent, but the contracting companies very frequently carry the grade to 7 per cent."

Extent of Berlin's Automobile Population.

Statistics just issued by the German Statistical Bureau for the year 1910 give the number of automobiles in use in Greater Berlin as 6,397, or 20 per cent of the cars running in the whole kingdom of Prussia, or 11 per cent of all cars in the German Empire. Of these 6,397 cars, 5,312 are used as passenger cars, while the remaining 1,084 are motor trucks and light delivery wagons, the latter with 700 representing 68 per cent of the total commercial vehicles. Of the passenger cars 717 are motorcycles, tri-cycles and side cars; 1,172 are of eight horsepower or under; 1,789 have from 8 to 16 horsepower; 1,613 from 16 to 40 horsepower, and 21 are of more than 40 horsepower. Of the commercial cars 700 are light delivery wagons having less than eight horsepower; 229 more than eight and less than sixteen horsepower; 147 between 16 and 40 horsepower, while only nine exceed 40 horsepower.

Tall Title for Commonplace Purposes.

Under the impressive title of the Societe Generale de Banque et de Credit Automobile, Ltd. a \$500,000 company has been registered in London. Strange to relate its declared purpose is to carry on business as "proprietors, manufacturers and agents for the sale of, and intermediaries between, buyers and sellers of motor cars, carriages, omnibuses, vans and cabs, aeroplanes, airships, etc."

Vancouver Buys Many American Cars.

An American automobile manufacturer, who has been cultivating the market of Vancouver, B. C., with considerable success, is reported by United States Consul General David F. Wilber, of that district, to have sold two carloads, or 25 machines, during the last nine days of last July. Representatives of other American builders are said to be equally successful.

How Dirt Gets Into Fuel Tanks.

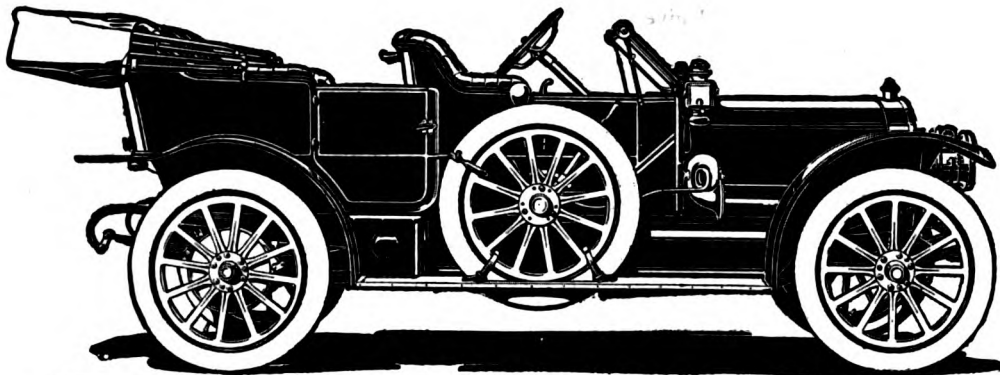
The accumulation of dirt or other foreign substances in the gasoline often may be traced to negligence on the part of the person who fills the tank in failing properly to wipe the top of the tank before the filler cap is removed. Though the amount of dirt on top of the tank may be almost microscopic, it is well to take the precaution.

Organizing Bus Line for Mexico City.

Mexico City is to have a new bus line which will be inaugurated with a mixed equipment consisting of six horse-drawn stages and four motor buses, each of the latter accommodating 36 passengers. The concession for the project was obtained by Dr. Samuel Espinosa de los Monterose.

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Motor Cars



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Sixty-four

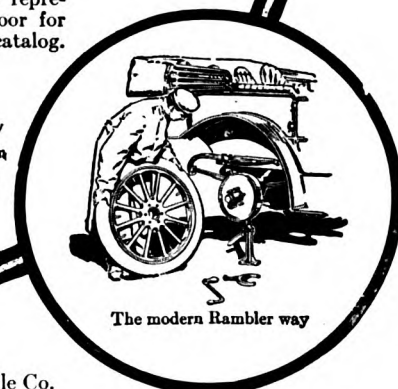
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993,291. Gas Engine. John A. Burnham, Jr., Boston, Mass., assignor to Barbour-Stockwell Co., Cambridgeport, Mass., a Corporation of Massachusetts. Filed Nov. 28, 1906. Serial No. 345,430.

1. An explosive engine comprising a cylinder or combustion chamber, opposed reciprocating pistons located therein, a driven shaft where to said pistons are operatively connected to impart rotation thereto, inlet and exhaust passages communicating with said cylinder, valves controlling said passages, said valves being opposed to each other and disposed substantially parallel with said pistons, and operating means for said valves symmetrically disposed with respect to the axis of the engine.

993,326. Gearing. Joseph P. Lavigne, Detroit, Mich. Filed Aug. 24, 1910. Serial No. 578,790.

1. A device of the character described comprising a casing, a shaft in said casing, a nut in said casing formed in parts and having screw-threaded engagement with said shaft to be moved longitudinally within said casing by the turning of said shaft, gibs between the outer sides of the parts of said nut and the adjacent sides of the casing movable with said parts, and springs exerting an outward pressure on said gibs and an inward pressure upon the parts of said nut.

993,336. Construction of Warning Horns. Felicien Berton, Paris, France. Filed Apr. 1, 1907. Serial No. 365,689.

1. A warning horn comprising a cylindrical box, a trumpet protruding from said box, a reed and partition within said box forming a sonorous conduit of gradually increasing section between said reed and said trumpet.

993,375. Short Circuiting Device for Magneto Electric Igniting Apparatus for Explosion Motors. Gottlob Honold, Stuttgart, Germany. Filed Aug. 7, 1906. Serial No. 329,569.

1. In an electric ignition device, the combination, with an igniter, an electric generator having a rotatable armature winding provided with two terminals, and a permanent connection between the armature winding and one side of the igniter, of a conductor connected to the other side of the igniter, a ring comprising a plurality of contact devices separated from each other by insulation, a brush arranged to contact with the contact devices, means for producing a relative rotation between the brush and the ring, said brush and one of the contact devices being arranged to make an intermittent connection between the aforesaid conductor and one terminal of the armature of the latter parts, each of said valves being adapted to close its port or to prevent a flow of water through said casing.

993,379. Shock Absorbing Vehicle Spring. Elmer H. Johnson, New York, N. Y. Filed Feb. 10, 1910. Serial No. 543,137.

1. The combination with a main spring formed of a plurality of superposed leaves of successively increasing length, said springs having their ends extending up-

wardly and said main spring having means for connecting it at the ends and middle thereof to a vehicle, of an auxiliary spring comprising a leaf attached at its middle to the upper face of the uppermost leaf of the main spring, but less in length than said main spring, said leaf on each side of its middle being formed with a plurality of successive upwardly bowed portions.

993,388. Spring Wheel for Automobiles. Frank J. MacCarthy, Seattle, Wash., assignor of one-third to George I. Meagher and one-third to E. S. Blackwell, Seattle, Wash. Filed Aug. 30, 1909. Serial No. 493,150.

A spring wheel comprising a rim having a plurality of grooved blocks secured to its inner face arranged in pairs, pins extending inwardly from said grooved blocks having transverse bores, apertured lugs formed on the sides of said blocks, a hub cut octagonally to form seats, spokes formed of compound bent spring members having apertured ends arranged in the blocks of the rim, and having means for securing their ends to the hub, cotter pins extending through the pins of the blocks, and tapering pins extending through the apertured lugs of the blocks for securing said spring members in position.

993,466. Vehicle Wheel. Gregory J. Spohrer, Franklin, Pa. Filed Aug. 24, 1910. Serial No. 578,654.

1. The combination with a wheel axle, of a wheel including a cylindrical hub, a cylinder carried by the hub, a piston in said cylinder having a stem extending through the hub and the end of the wheel axle, and means for admitting air to one end of said cylinder to yieldingly support the piston therein.

993,470. Ball Bearing. Willis C. Swift, Hinsdale, Ill. Filed Aug. 25, 1909. Serial No. 514,476.

1. In a ball bearing, inner and outer bearing rings having a raceway formed therebetween, bearing balls operating in said raceway, separators interposed between adjacent balls, but normally out of bearing contact therewith, and means arranged outside of the raceway and on opposite sides thereof for supporting said separators in position for the bearing balls to contact therewith at their mid points between the contacts thereof with the inner and outer bearing rings.

993,471. Ball Bearing. Willis C. Swift, Hinsdale, Ill. Filed Oct. 8, 1909, Serial No. 521,768. Renewed Mar. 27, 1911. Serial No. 617,233.

1. In a ball bearing, an inner and an outer bearing ring having a raceway formed therebetween, and bearing balls operating in said raceway, of socket pieces applied to the balls at the ends of the axes about which they revolve, and means for yieldingly restraining said socket pieces from endwise movement.

993,472. Equalizing Drive Mechanism. Herman Tenham, Brandon, Wis. Filed Mar. 12, 1910. Serial No. 548,817.

1. In a differential clutch mechanism for the traction wheels of motor driven vehicles, the combination with driving mechanism of a set of driving and driven clutch members, one provided with a resiliently mounted projection and the other having an oscillatory cylindrical member socketed therein and adapted to be adjusted to interlock with said projection on either side of the latter, and means connected with the driving mechanism of the vehicle for auto-

matically adjusting said cylindrical member.

993,516. Carburetter. William M. Gentle, Greenwood, Ind. Filed Dec. 2, 1909. Serial No. 531,022.

1. A carburetter including means for supplying and mixing air and fuel to form an explosive gas, a casing through which the explosive gas passes from the carburetter, a valve extending across said passageway that tends to open under the influence of the suction of the engine, means tending to close said valve, an opening in said casing to the outer air in advance of said valve, a valve for closing said opening that is pivoted on the side of the valve toward the outlet to the carburetter so that back-firing will tend to open said last-mentioned valve, and yielding means for holding said valve normally closed.

993,536. Shock Absorber. George Cushing Martin, Los Angeles, Cal. Filed Nov. 4, 1909. Serial No. 526,260.

1. Two relatively rotatable members, a floating shoe between said members and frictionally engaging one of said members, and resilient means including a toggle joint and arranged between the shoe and the other member, and operable by relative rotation of said members to force the shoe with yielding pressure against the member with which the shoe engages.

993,559. Electrically Propelled Vehicle. Robert Siegfried, Pittsburgh, Pa., assignor, by mesne assignments, to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Aug. 10, 1908, Serial No. 426,392. Renewed Mar. 20, 1911. Serial No. 615,657.

1. The combination with a pair of truck wheels and a driving motor, of speed-reducing gears between the respective ends of the motor armature shaft and the truck wheels and a flexible connection between like members of the two sets of gears.

993,611. Electromagnetic Power-Velocity Ratio Device, Particularly Applicable for Driving Automobiles. Albert Henry Midgley, Forest Gate, and Charles Anthony Vandervell, Acton Vale, England. Filed May 7, 1909. Serial No. 494,663.

1. An electromagnetic power velocity ratio device consisting of in combination a dynamo armature, a motor armature, and one set of field magnets common to the two armatures, the motor armature being surrounded by said magnets, the motor armature being fixed and the dynamo armature and field magnets being adapted to move relatively to one another and to the motor armature, means for exciting the field magnets, and means for conveying the current generated by one armature to the other armature, substantially as described.

993,632. Tire Case. Bernard A. Alperin, New York, N. Y., assignor to Lafayette B. Gleason, Delhi, N. Y. Original application filed May 5, 1909. Serial No. 493,998. Divided and this application filed June 21, 1909, Serial No. 503,291. Renewed Dec. 13, 1910. Serial No. 597,150.

1. The combination with a car body and a running board, of a drum shaped case having one circular side hinged, a frame member secured on the back of the case and having hinge members to one side in alignment, one of the hinge members being pivoted on the running board and the other hinge member being pivoted to the side of

the car whereby the case can swing outwardly from the car, and a foot rest on the frame on the opposite from the hinge members for engagement with the running board.

993,652. Hydraulic Transmission Mechanism for Automobiles. Clyde J. Coleman, New York, N. Y., assignor to Conrad Hubert, New York, N. Y. Filed Dec. 14, 1906. Serial No. 347,895.

1. The combination, with a hydraulic motor, of physically distinct and functionally interchangeable induction and eduction passages constructed and arranged to act upon the motive liquid in whichever of the passages that acts as an eduction passage and not to act upon the motive liquid in the other passage which acts as an induction passage, irrespective of the direction of flow of the motive liquid through the passages and the motor.

993,770. Carburetter. Julius L. Fritz, Philadelphia, Pa., assignor of one-half to Amos H. Oman, Philadelphia, Pa. Filed Feb. 11, 1911. Serial No. 608,087.

1. In a device of the character stated, a casing having a mixture outlet, a mixing chamber in said casing having air and fuel inlets, fuel supply for said mixing chamber, a supplemental air inlet having communication with said mixing chamber, a supplemental fuel nozzle, and suction controlled means for controlling the supplemental air inlet, and on a predetermined movement of said means controlling the amount of fuel passing to the supplemental air inlet.

993,823. Baggage Truck. Tracy V. Buckwalter, Altoona, Pa. Filed Apr. 9, 1910. Serial No. 554,404.

1. A truck comprising a frame having a lower section and elevated end sections, traction wheels housed within said end sections for carrying said frame, and a motor housed within one of said end sections and connected with the wheels therein.

993,849. Device for Resiliently Supporting the Frames and Bodies of Vehicles. John T. Lister, Cleveland, Ohio, assignor of thirty-five one-hundredths to Worthing Hoyt, Cleveland, Ohio. Filed Oct. 24, 1910. Serial No. 588,636.

1. A device for resiliently supporting a vehicle body upon an axle, comprising a hollow tubular member, plungers within the hollow tubular member at opposite ends thereof, the one of said plungers being operatively connected to the body to respond to vertical motion, the other plunger being operatively connected to the body so as to respond to horizontal motion of the body, substantially as described.

993,862. Transmission Gearing for Motor Cars. Joseph Osario Michaud, Fort Kent, Me. Filed Nov. 10, 1910. Serial No. 591,732.

In a transmission gearing such as described, a shaft, a cup gear having a set of internally cut teeth mounted on the end thereof, means for shifting said cup gear

in a transverse plane, a universal joint in the shaft to transmit rotation through various angles to a driven member, a square shaft with means for connecting or disconnecting the same with a source of power, an internally squared sleeve slidable on the said square shaft and suitably journaled in a support, a cone of gears mounted on the inner end of the said sleeve and extending within the cup gear, a shaft parallel to the aforementioned shaft, one end extending within the cup gear and the other end journaled in the aforementioned support, a reverse gear mounted on the inner end of the shaft and meshing with the smaller one of the cone gears, a second set of internally cut teeth mounted in the said cup gear to mesh with the said reverse gear when the said driven member is to be reversed, a positive clutch member formed on the inner end of the slidable sleeve, an opposite clutch member forced on the cup gear, and a collar mounted on the outer end of the slidable sleeve, together with an operating yoke engaging said collar, substantially as and for the purposes set forth.

993,863. Crank Case Construction for Gas Engines. James T. Moltrupp, Beaver Falls, Pa. Filed Apr. 24, 1908. Serial No. 428,942.

1. In a gas engine, a crank shaft, a plurality of cylinders having their pistons connected to said shaft, and a crank casing, said casing comprising separate rigid heads having bearings for the crank shaft, and a sheet metal casing secured to said heads and provided with seats for the cylinders, said heads having inwardly projecting longitudinal flanges to which the sheet metal casing is secured, said flanges being extended underneath the adjacent cylinder seats of the sheet metal casing; substantially as described.

993,942. Suction Priming Cup. Orville Emanuel Appel, Bushton, Kan. Filed Feb. 5, 1910. Serial No. 542,266.

1. A priming means for explosion or hydro-carbon engines comprising a cut or reservoir of a capacity to contain only sufficient fuel to supply the engine until the regular charges from the carburetter can reach the explosion chamber, said cup being provided with an unobstructed pipe leading from a point near the bottom of the cup to a point above the level of liquid in the cup when the latter is filled to the normal height, said pipe being of a length to enter the intake conduit of the engine into close proximity to the explosion chamber of the engine.

993,956. Starting Device for Engines. Harvey Burns, Lebanon, Ohio. Filed Oct. 7, 1910. Serial No. 585,851.

1. In an engine starting device, the combination of an engine including a shaft, a spring-rotated gear wheel, a rotating rewinding element co-axial with the gear wheel, independently movable arms mounted to swing from the axis of the wheel and element, a pinion on one of the arms permanently meshing with the gear wheel, a gear on the shaft with which the pinion is adapted to be engaged, an idler on the

other arm adapted to be moved into and out of engagement with the shaft to transmit motion from the latter to the element for re-winding the spring, and a common actuator movable in one direction for actuating one arm in starting the engine and movable in the opposite direction for actuating the other arm to re-wind the starting spring after the engine is started.

994,019. Drive-Axle. Jonathan D. Maxwell, Tarrytown, N. Y. Filed Sept. 13, 1907. Serial No. 392,629.

1. The combination with a tubular transverse member provided with an intermediately situated differential gear case and with a driving shaft revolvably mounted therein, of brackets affixed to the outer ends of said transverse member and extending upwardly therefrom and studs secured in the upper ends of said brackets and upon which the traction wheels are journaled, said brackets formed with inwardly projecting upper and lower tubular arms, the inner ends of the studs being secured in the upper ones and the outer ends of the transverse member being secured in the lower ones, said lower arms projecting inwardly into juxtaposition with the gear casing and forming supports for the vehicle body.

994,024. Shock Absorber. Arthur L. Mitchell, Portland, Me. Filed Feb. 3, 1910. Serial No. 541,204.

1. A shock absorber for vehicles comprising a plate disposed at right angles to the axle of a wagon, a spring interposed between the axle and the plate at their intersecting point, and a substantially triangular member astride the bow spring of the axle and having its divergent ends connected to uate movement on said plate is permitted. the ends of said plate whereby a slight arc

994,498. Reed for Automobile Horns. Frank Bishop, St. Louis, Mo. Filed July 30, 1910. Serial No. 574,675.

1. A reed comprising a body of segment shape in cross section, a vibratory tongue facing the open side of said body, and a guard facing said tongue.

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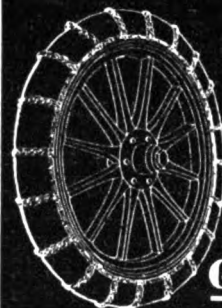
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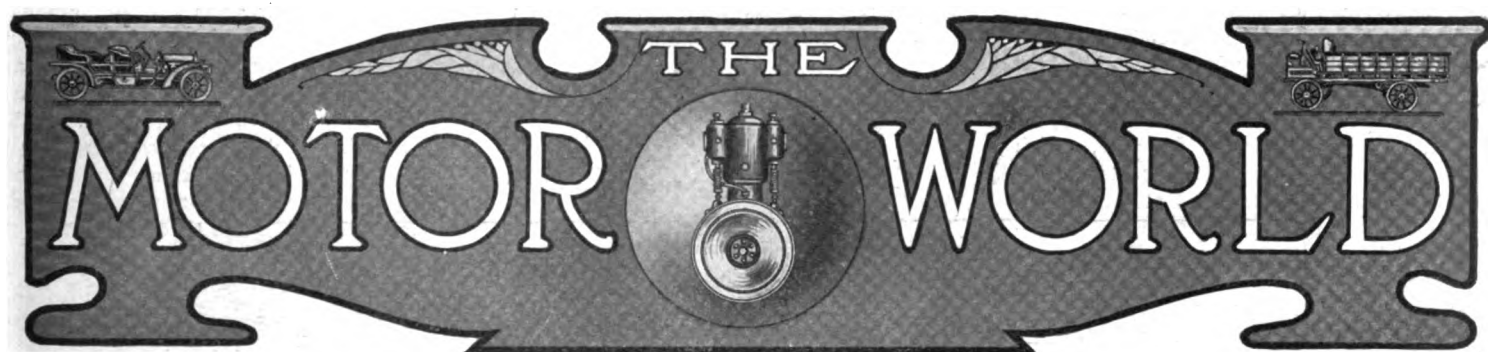
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**ABSORPTION RUMORS PUNCTURED**

U. S. Motor Disclaims Intention of Wholesale Mergers—Overland Emphatically Nails False Report.

Rivaling the products of the once busy Detroit rumor factory, which in its time put out a tremendous line of reported mergers, absorptions and consolidations, another batch of absorption rumors is being distributed in the trade concerning alleged negotiations by the United States Motor Co. to get additional big properties for its already very complete group. The grapevine telegraph has been busy with reports, mentioning Willys-Overland, Thomas and Stevens-Duryea as parties to negotiations, whereas, as a matter of fact, the real negotiation mill was seldom if ever more idle and unused than at present, or the likelihood of absorptions more remote.

Officials of the United States Motor Co. itself know nothing of any negotiations with any of the companies named. It is known that some individuals have interests in both United States Motor and Thomas at the same time, but this by no means spells absorption or domination by the former. Both the Willys-Overland and Stevens-Duryea rumors are dismissed as unaccountable, and George W. Bennett, general sales manager of the Willys-Overland Co., in a telegram from Toledo, puts a decisive end to the report involving his company, as follows:

"Absolutely nothing in rumor. No negotiations of any description have been made and, furthermore, the Willys-Overland Co. is not for sale."

Knight Tires to Be Made in Canton.

Another source of automobile tires is to be made available to the trade and the public by the Knight Tire & Rubber Co., of Canton, O., of which Charles Knight, of the Republic Stamping & Enamel Co., in Canton, is the head. The concern was

incorporated last May with \$300,000 capital and has commenced work on the erection of a large brick and concrete factory, with a 550-horsepower engine equipment. The plant will be devoted to automobile tires exclusively.

Miller Opening a Branch in Albany.

What will be his twelfth branch store is to be opened in Albany, N. Y., by Charles E. Miller, manufacturer, jobber, exporter and importer of automobile supplies, whose home office is at 97-103 Reade street, New York City. The Albany branch will be in a new building at 135 Central avenue, and will be ready for business in October.

More Money for Jacobson-Brandow.

Considerable inflow of money into the Jacobson-Brandow Co., of Pittsfield, Mass., which makes ignition equipment, is promised as the result of the efforts of a local committee to raise subscriptions for the company's stock. Pledges aggregating \$10,000 additional capital from local subscriptions have been secured.

Long Horn Going to Long Island.

The G. Piel Co., of New York City, making the Long horn for automobiles, is to move from its present location at 363 Rider avenue. The factory will be located in the Metal Stamping building, at the Boulevard and Thirteenth and Fourteenth streets, Long Island City, on October 1st.

Stewart Opens a Cleveland Office.

For the benefit of its Stewart speedometer customers in Cleveland, O., the Stewart & Clark Mfg. Co., of Chicago, Ill., has opened an office in that city, at 1849 Euclid avenue. It will be in charge of H. A. Ungar, who has been traveling the Northern Ohio territory.

Cortland Wagon Now in Pittsfield.

The Cortland Motor Wagon Co. has moved from Cortland, N. Y., to Pittsfield, Mass. The change affords the company many advantages, including more room and better shipping facilities.

ARMY OF DEALERS TO DETROIT

Studebaker Spending \$100,000 on Special Trains for Its Agents—Come From All States.

In magnitude quite overshadowing anything of the sort ever before attempted in the automobile industry, the Studebaker Corporation, through General Manager Walter E. Flanders, has commenced an "at home" to its dealers that in its carrying out includes the transportation of every E-M-F and Flanders dealer in the country to the Studebaker factories at Detroit, at the company's expense, in order that they may see how the cars are made. There are some 2,500 of these dealers, and the expense of taking them from their home cities to Detroit and back again will be about \$100,000.

The scheme, which was put into actual operation this week, contemplates taking the dealers from the respective districts, in groups of about 200, on special trains, composed of steel Pullman sleepers, observation car and dining car. In each case the special train is taken to the E-M-F siding on Piquette avenue, and serves as the sleeping quarters for the visitors during a two days' stay in Detroit. The schedule calls for an arrival in Detroit at 6:45 a. m. and a departure on the following evening at midnight. Twenty-five or more of these special trains will be employed, some of them from the Pacific Coast and still others from New England. They will arrive in Detroit at successive periods during the ensuing two months, until the whole list of dealers has been taken care of.

The first contingent arrived on Monday, from the States of Georgia and Alabama, having started from Atlanta and Birmingham, respectively. They were met by Flanders and other officials of the company and were taken in automobiles to the Fellowship Club for breakfast. The morning was spent at plant No. 1, where E-M-F

cars are made. Following lunch at the Pontchartrain, they went to the ball game, and after dinner on the Hotel Tuller roof they boarded a steamer for a lake ride. On Tuesday, their second day, they visited plant No. 3, where the Flanders is produced, as well as Nos. 2, 5 and 8, which have to do with pressed steel parts, bodies and tops. Lunch was served at the Detroit Golf Club, and in the afternoon the Southerners rode with testers out to Pontiac and Orange Lake, visiting the farm owned by Flanders, where dinner was served. Trolley cars brought them back to Detroit in time to get aboard their special before it pulled out at 11:59 p.m.. Each visitor wore a white badge with his name, and blue badges marked the company's officials. Printed programs and seats that were assigned to each dealer by name in the automobiles and trolleys prevented any confusion or delay. The same general character of procedure will obtain with the succeeding delegations.

The schedule so far made up is as follows: August 31, Memphis, Tenn. and Louisville, Ky.; September 5, Philadelphia, Pa., and Washington, D. C.; September 6, Chicago, Ill.; September 11, Dallas, Tex., and Oklahoma; September 14, Kansas City; September 18, Indianapolis, Ind.; September 21, Minneapolis, Minn.; September 25, Fargo, N. D.; September 29, Des Moines and Sioux Falls, Iowa.

Haynes-Knutson to Be a Distributor.

Harvey S. Haynes, who has done business in Minneapolis for the past nine years as the Haynes Automobile Co., and John N. Knutson, of the Ideal Auto Co., St. Paul, Minn., have combined forces under the name of the Haynes-Knutson Auto Co., 219 South Sixth street, Minneapolis. The firm will do a general automobile distributing business throughout the entire Northwest, and has arranged a long term contract as distributor for the Cole "30-40" throughout Minnesota, the Dakotas, Western Wisconsin and Montana. It also will probably take on a cheaper line of cars and will handle commercial vehicles of some standard and well known make.

Mason Motors Starting in Flint.

Organized a few weeks ago, the Mason Motor Co., of Flint, Mich., already has secured a plant, on West Kearsley street, and is making ready to commence the manufacture of motors for automobiles. The building occupied by the company has four floors, with a total of 22,800 square feet. Arthur Mason is the general manager of the concern.

Alpena Elects Its 1912 Officers.

The Alpena Motor Car Co., of Alpena, Mich., through its directors, has elected the following officers for the ensuing year: Richard Collins, president; William Krebs, vice-president; W. B. Robinson, secretary-treasurer and general manager.

Changes Among Prominent Tradesmen.

S. Wallis Merrihew, who has been president and editor of Automobile Topics, is withdrawing from that connection. He has not as yet disclosed his future plans.

R. J. Buell, formerly advertising manager for the Regal Motor Car Co., has become associated with the Willys-Overland Co., at Toledo, Ohio. He will be assistant advertising manager.

Edward Jarvis has been appointed manager of the Chicago salesrooms of the Lozier Motor Co., of Detroit, Mich. He succeeds J. H. Palmer, who has gone into business for himself.

Leslie B. Sanders has become the sales manager of the Lion Motor Car Co., Adrian, Mich., which makes the Lion car. Until recently he was a district representative of the United States Motor Co.

Percy W. Hood, at present with the American Distributing Co., has resigned to accept a road position with the Timken Roller Bearing Co., of Canton, O. He will make the change on September 15th.

L. L. Barnes, who recently resigned as a district manager in the South for the Hudson Motor Car Co., has been engaged as a Southern representative for the Metzger Motor Car Co., of Detroit, Mich. He will make his headquarters in Atlanta, Ga.

W. Bonsor has become supervisor of parts in the factory of the Stevens-Duryea Co., of Chicopee Falls, Mass. For some years he was connected with the factory of the Daimler Motor Co., Ltd., at Coventry, England, and more recently he was with the Packard Motor Car Co.

H. B. Groves has resigned as manager of the United Motors Des Moines Co., which is the Iowa State branch of the United States Motor Co. He has found it desirable to devote his whole time to the Interstate Auto & Supply Co., which has its headquarters in Sioux City and branch houses in other cities in Iowa and South Dakota. He is the principal stockholder in the concern.

A. E. Morrison, one of the veterans of trade, is now the factory director of the Cole Motor Car Co., of Indianapolis, Ind. His duties give him a position second only to President J. J. Cole. He resigned the position of sales manager of the Pacific Motor Car Co., at San Francisco, to accept the Cole offer. Morrison graduated from bicycles to automobiles at Waltham, Mass., subsequently represented the Peerless at Boston, and later had a large hand in the affairs of the Taxi Service Co., of Boston, before going to the Coast.

Sanbert Trucks in the Metropolis.

Metropolitan representation for Sanbert one-ton trucks, which are made by the Sanford-Herbert Co., of Syracuse, N. Y., has been effected by placing the New York City agency with the Bell Bros. Co., which has opened a showroom at 1876 Broadway.

The Sanford-Herbert Co. is closely related to the LeFebvre Firearms Co., of Syracuse, J. F. Durston being president of both concerns. The Sanbert truck has been marketed in Central New York for two years, but its sale is now being extended by Thomas M. Pritchard, the sales manager. He has established agencies in Boston, Pittsfield and New London, as well as New York. The truck has a three-cylinder, vertical, two-cycle, air-cooled motor, a planetary transmission and double side chain drive.

Remy to Extend Service System.

Having established "service stations" in a number of the principal automobile centers, the Remy Electric Co., of Anderson, Ind., has declared for a policy of placing similar stations in other of the larger cities as rapidly as possible. The "service stations" or branch houses carry a complete line of Remy magnetos and devices, each house being in charge of an expert, who, with several expert mechanics, sees that Remy equipment on cars in his territory receives whatever attention is necessary. They inspect the equipment, give advice as to care and usage and make any necessary adjustments.

Poss to Make Trucks in Anhut Plant.

The Poss Motor Co., of Detroit, Mich., which filed its articles of incorporation this month and already is preparing for active manufacture, is to produce trucks of a capacity of from 1,000 to 1,500 pounds, selling at about \$800. The concern is occupying the old Anhut plant at 504-508 Howard street. Frank R. Poss, one of the organizers of the Abbott Motor Co., of Detroit, and vice-president of the Detroit baseball team, is the president. The other principal stockholders are Robert R. McKinley, Joseph M. Ness and George W. Baile.

Henderson Concentrating on Cole.

The Henderson Motor Sales Co., of Indianapolis, Ind., general sales agents for the Cole "30-40," made by the Cole Motor Car Co., Indianapolis, announces the discontinuance of the handling of any other make besides the Cole. The great volume of business in connection with the Cole has made it necessary to concentrate on the one line.

Promoters in Erie Promise Elixer.

Promoters from St. Louis, Mo., are in Erie, Pa., indicating their intention of putting up a plant in the latter city for the manufacture of a car styled the Elixer. The men are Charles E. Furn and Randolph S. Cook.

Bretz Western Office Moves.

The Western office of the J. S. Bretz Co., of New York, has been removed to 504 Ford building, Detroit. It will remain in charge of J. W. Hertzler, the Bretz Western representative.

ARRESTS MAY SOLVE TIRE THEFTS

Automobile District Robberies in New York Aggregate \$100,000 in Short Period—Two Alleged Thieves Caught.

Helping in some degree to solve the mystery of tire thefts in the automobile district of New York City, which in a comparatively short period have aggregated over \$100,000, what are regarded as important arrests were made by the New York police early on Monday morning of this week, when two alleged tire thieves were taken. It is thought that they may be members of a large gang which is supposed to be disposing of stolen automobile tires to some of the less savory of the cut-price houses.

Complaints have been made to the police daily for some time about the numerous thefts from salesrooms, garages and supply establishments where tires are to be found, and on Monday morning Detective Burgess saw five men coming out of a house at 831 Eleventh avenue. Two of them were carrying tires. The detective caught these two men, and when they resisted drew his revolver and took them to the station. While they were giving their pedigree at the station, Edward Kierske, secretary of the Wilson Motor Co., 540 West Fifty-eighth street, telephoned a report of the theft from his place of tires corresponding to those carried by the men. The prisoners are James Alwell, 20 years old, and James Scallon, who is 19. They were charged with burglary, on Kierske's complaint, and before Magistrate House on Monday were held in \$2,000 bail each for further examination.

Take Abbott-Detroit for New England.

For the New England distribution of Abbott-Detroit cars, the Abbott Motor Co., of Detroit, Mich., has closed a contract with W. M. Jenkins & Co., 288 Columbus avenue, Boston, Mass., which latter concern only recently relinquished the Mitchell line after representing it for seven years. The Jenkins company is one of the three pioneer automobile dealers in the New England States.

Speers & Riddle to Leave Wheeling.

The Speers & Riddle Co., with headquarters in Wheeling, W. Va., having arranged for a large production of six cylinder T-head motors for the automobile trade for 1912, is arranging to unite all its interests at Glendale, where the factory is located. The company's supply business and building in Wheeling will be sold and the office force moved to Glendale.

Continental Motor Going to Detroit.

The Continental Motor Co., of Muskegon, Mich., is completing arrangements to move the factory from that city to Detroit.

The officers of the company will change their places of residence correspondingly. Among those who are to take part in the translocation are B. F. Tobin, president; R. W. Judson, vice-president, and E. J. Warner, secretary.

Mansfield Concern Dies A-Bornin'.

Even before it reached the stage of bringing forth any cars, the Forth Motor Car Co., of Mansfield, O., has made an assignment to J. E. LaDow, an attorney. The liabilities are placed at \$1,000 and the assets consist chiefly of one automobile assembled from parts makers' products and which was to be the prototype for the company's machines, provided it were successful in interesting local capital.

Refinishing Project in Grand Rapids.

Promising to give dealers and the trade in Grand Rapids, Mich., special facilities and service in the refinishing of cars, W. R. Link, of the Adams & Hart Co., and Fred Hicks are promoting a company to do a general automobile refinishing business. It is proposed to capitalize at \$30,000, and several of the local automobile agencies have been pledged to take stock.

U. S. Motor in Restaurateur Role.

For the accommodation of its employees in the Brush Runabout Co., the Alden Sampson Mfg. Co. and the Gray Motor Co., the United States Motor Co. has opened a restaurant in Detroit. Four hundred can be taken care of at one time. The restaurant is of the "self-serve" type, equipped with the most modern facilities, and is not "force feed."

Third Dividend for Thrall Creditors.

General creditors of the Thrall Motor Co., of Detroit, Mich., are receiving from the Detroit Trust Co., trustee in bankruptcy, a third and final dividend, amounting to about 9.8 per cent. Two previous distributions of 10 per cent each have been made, so that altogether as against the liabilities of \$24,600 the creditors receive about \$7,250.

Waloff Considers Mankato Location.

The Waloff Motor Truck Co., of Minneapolis, Minn., which for the past two years has been developing a truck, is making a proposition to Mankato, Minn., to establish a factory there. The concern when organized in the fall of 1909 had a capitalization of \$100,000, but on the first of this year the capitalization was made \$200,000.

Motor Delivery for Biloxi Merchants.

Keeping pace with advanced methods, the merchants of Biloxi, Miss., are to dispose of their horses and wagons and will contract with a local motor delivery concern to deliver their goods to their customers. The delivery company will be capitalized at \$10,000, and the merchants in many cases will be stockholders.

GENERAL MOTORS BACKS LANSDEN

Veteran Electric Wagon Designer to Develop Electric Trucks at Pontiac—Takes Some Associates With Him.

Showing that the General Motors Co., too, is alive to the possibilities afforded in the electric truck situation, the company has secured John M. Lansden, a veteran electric designer, and around him will build a manufacturing organization for the production of electric trucks of from one to six tons capacity. Lansden organized the Lansden Co., of Newark, N. J., in 1904, and began the building of Lansden electric wagons at that time, continuing until very recently. His future productions will be manufactured and marketed by the electric division of the General Motors Truck Co., the latter having been incorporated a month or so ago as a selling company for commercial vehicles produced by the various companies under General Motors control. The plant will be at Pontiac, Mich., where also some of the General Motors gasoline commercial vehicles are manufactured.

Lansden takes with him a number of his associates who have co-operated with him in the production of the Lansden electric wagons and trucks. F. A. Whitten, who has been his chief engineer, will act in a similar capacity under the new arrangement, and C. L. Morgan, who until the first of the year was sales manager of the General Vehicle Co., will be identified with the sales and advertising departments. A number of the men in the drafting and engineering departments at Newark will also go to Pontiac.

New York Home for Gramm Trucks.

Gramm motor trucks, made by the Gramm Motor Car Co., of Lima, O., are to be distributed in the New York City district by the Hextor Motor Truck Co., a newly incorporated concern with temporary headquarters at 103 West Fifty-first street. P. K. Hextor is president and general manager of the company. A service building five stories high and basement is being put up, in which will be located the salesroom and a complete garage and machine shop, and where a full stock of repair parts will be carried.

Old Ford Plant in Detroit is Sold.

At a price of \$175,000, the old Ford plant, at Beaubien street and Piquette avenue, Detroit, Mich., has been disposed of to new owners, who as yet wish to keep their identity undisclosed. The sale prompted much speculation, and although the Studebaker Corporation and other similar interests have denied purchasing it, the plant in all probability will be used for automobiles or motorcycles.

San Franciscans Make Self-Starters.

What once were luxuries are becoming more in the nature of necessities to Pacific Coast motorists, as indicated by the increasing demand on their part for self-starting and tire pumping attachments. To help meet the demand another automatic starter has been launched in San Francisco. It is to be made by a new concern known as the Auto Gas Engine Starter Co., a corporation composed of prominent local men, including Peter C. English, B. Goodwin, William C. Tedlie, Dr. G. M. Freeman, Allen Weir, J. A. Clover and J. D. Mouser. The company has established a factory on Golden Gate avenue. The device consists of a combination air compressor and air motor, with air pressure tank. The latter may be drawn upon for inflating tires.

Simmons Hardware to Be \$7,500,000.

The Simmons Hardware Co., of St. Louis, Mo., has announced a plan of reorganization calling for a new company to be called the Simmons Hardware Companies, with a capitalization of \$7,500,000, divided equally into common and 6 per cent. cumulative preferred stock. The present company is capitalized at \$4,500,000.

Red Head Plug Plant in Detroit.

The Emil Grossman Co., of New York City, has removed its Red Head spark plug factory to Detroit, Mich. The plant, consisting of three floors, is located at 844 Woodward avenue, and the local Detroit display room has been changed from 974 Woodward avenue to the same location.

Radiators Classed as Refrigerators.

Changes have been made in the Patent Office at Washington as to the classification of applications and patents relating to motor vehicle radiators and automobile condensers. Separate sub-classes under "refrigeration" have been established for them.

Placing Velie Agencies in the South.

Southern territory for Velie cars, made by the Velie Motor Vehicle Co., of Moline, Ill., is being opened up by Edgar L. Scouten. He is making a tour of the Southern States and is closing a number of 1912 agencies through the Velie branch at Boston.

Mankato May Go to Red Wing.

Negotiations are being carried on looking to a combining of the Mankato Motor Truck Co., of Mankato, Minn., with the Red Wing Motor Co., at Red Wing, Minn. The latter company was previously known as the Red Wing Motor Boat Mfg. Co.

Portland's Puncture-Proof Tire Plant.

Backed by local capital, the Fletcher Tire Co. has begun business in Portland, Ore. It has installed a plant at 125 Sixteenth street, where it will manufacture a puncture-proof tire on a limited scale.



Sumter, S. C.—Epperson Motor Co., under South Carolina laws, with \$2,000 capital; to do general automobile business. Corporators—G. F. Epperson, T. B. Jenkins.

Seattle, Wash.—Automobile Exchange & Repair Co., under Washington laws, with \$2,400 capital; to buy, sell, rent and repair automobiles. Corporators—J. H. Hasbrook, E. P. Whiting.

Grand Rapids, Mich.—Economy Automobile Co., under Michigan laws, with \$7,500 capital; to manufacture, sell, repair, rent and store automobiles. Corporators—F. P. Oswald, H. J. Hagen, H. A. Brink.

Louisville, Ky.—Victor Motor Accessories Co., under Kentucky laws, with \$25,000 capital; to manufacture and deal in automobile accessories. Corporators—D. W. Reinoll, Clarence F. Ott, Alfred W. Ott.

Boston, Mass.—Mark Motor Supply Co., under Massachusetts laws, with \$25,000 capital; to deal in automobile supplies and accessories. Corporators—Mark V. O'Neill, Robert M. Johnson, Randolph Frothingham.

Hopkinsville, Ky.—Cayce-Jones Motor Co., under Kentucky laws, with \$10,000 capital; to sell, store and repair automobiles. Corporators—L. M. V. Cayce, H. D. Dorris, A. B. McDonald, Thomas C. Jones.

Cincinnati, Ohio—Rambler Motor Car Co. of Cincinnati, under Ohio laws, with \$25,000 capital; to deal in automobiles. Corporators—Charles Reed, W. H. Kaufman, Walter C. Reed, George H. Jung, F. D. Ratterman.

Indianapolis, Ind.—Fisher-Gibson Co., under Indiana laws, with \$50,000 capital; to deal in automobiles and other motor vehicles, and in automobile accessories. Corporators—Carl G. Fisher, Cecil E. Gibson, Will J. Dobyns.

Hudson, Wis.—St. Croix Carage Co., under Wisconsin laws, with \$10,000 capital; to operate a garage. Corporators—Emil E. Mayer, William M. Grant, Chris Nickleby, Gus A. Hansen, Oliver E. Lyksett, S. N. Palms, Thomas A. Walby.

St. Charles, Mo.—Boenker Motor Plow Co., under Missouri laws, with \$24,000 capital; to manufacture motor-driven agricultural implements and other motor vehicles. Corporators—H. H. Boenker, Louis Ringe, J. C. Wilbrand and others.

Detroit, Mich.—Poss Motor Co., under Michigan laws, with \$250,000 capital; to manufacture and deal in automobiles, motors and motor vehicles. Corporators—Frank P. Poss, Robert R. McKinley, Joseph M. Ness, George W. Bailey.

New York City, N. Y.—Automatic Fender Co. of America, under New York laws, with \$1,000,000 capital; to manufacture automobile and other fenders. Corporators—William E. McGuirk, Saul S. Meyers, William E. Lowther, all of New York.

Chicago, Ill.—Midland Electrical & Mfg. Co., under Illinois laws, with \$50,000 capital; to manufacture electric lamps for automobiles and motorcycles, and other electric specialties. Corporators—A. Engstrom, A. C. Carlson, F. Dieser, all of Chicago, Ill.

Jersey City, N. J.—The Studebaker Corporation of America, under New Jersey laws, with \$100,000 capital; to manufacture automobiles and other motor vehicles. Corporators—H. G. Latimer, J. B. Marsh, of New York City; J. R. Turner, of Basking Ridge, N. J.

Louisville, Ky.—Wilder Motor Car Co., under Kentucky laws, with \$5,000 capital; to deal in, rent and repair motor vehicles. Corporators—Oscar Wilder, twenty shares; M. R. Wilder, three shares; Percy N. Booth, three shares. Limit of indebtedness has been fixed at \$10,000.

Utica, N. Y.—B. J. Bristol, Inc., under New York laws, with \$1,000 capital, of which \$500 has been paid in; to deal in automobiles, motorcycles and other motor vehicles. Corporators—Benjamin J. Bristol, three shares; Bertha C. Bristol and Myron H. Smith, one share each.

Increases of Capital.

Detroit, Mich.—American Motor Castings Co., from \$200,000 to \$250,000.

St. Louis, Mo.—Motor Wagon Delivery Co., from \$6,500 to \$12,000.

Recent Losses by Fire.

Buffalo, N. Y.—C. W. Miller Taxicab Co.'s garage damaged. Loss \$25,000.

First Fall Show at Detroit Fair.

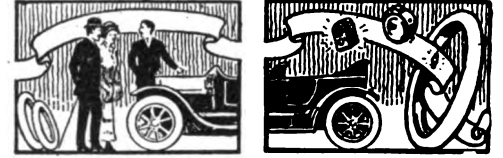
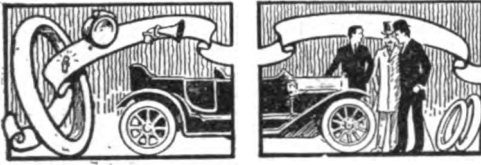
Detroit is likely to have the first comprehensive display of new models to be held this fall. It will be in connection with the Michigan State Fair, September 18 to 22, and a building constructed particularly for this purpose has been erected on the fair grounds. Thirty-one exhibitors have secured space.

Schurmeier Property to be Sold.

John P. Galbraith has been appointed receiver for the Schurmeier Motor Car Co., of St. Paul, which on August 2nd filed a petition in bankruptcy. Arrangements are being made to sell the property for the benefit of creditors.

Adapt Steam Chassis to Commercials.

H. W. Bell & Co., 146 Woodworth avenue, Yonkers, N. Y., are developing a steam commercial delivery wagon. It is a Stanley chassis, modified and equipped for commercial work.



Henry Sholtz has opened a garage and repair shop in Sparta, Wis.

H. T. Carlson has opened a garage and repair shop at Moose Lake, Minn.

The Morton-Larson Auto Co. has been formed at Ellsworth, Wis. It will do a general garage business.

Charles Brautigam has opened a garage and repair shop at the corner of Fifteenth and Center streets, Racine, Wis.

H. Reed Hawley, of Staatsburg, N. Y., has added a salesroom to his garage and taken the agency for Cole "30" cars.

J. C. Chrisman, of Nashville, Tenn., has opened a salesroom at 145 Third avenue, where he will display the Cole "30" line.

The Logan Square Garage, of 1632 Vine street, Philadelphia, Pa., has been opened to the public. M. Morrison is the manager.

The old skating rink on Broad street, Beloit, Wis., has been turned into a garage and repair shop. Joseph H. Saris is the owner.

Jay Hileman, of the Black Hawk Auto & Repair Co., has sold his business to M. Mether. The concern operates a garage in Waterloo, Iowa.

Work has been started on a new garage on Eleventh street, Chattanooga, Tenn. It will be two stories high and will be occupied by the Ford Sales Co.

Charles H. Carlton is building a garage on Chestnut street, near Forty-sixth street, Philadelphia, Pa. It will be two stories high, 50 x 184 feet, and will cost \$10,000.

George Brinkman has purchased the property at 2820 Locust street, St. Louis, Mo., and will erect a garage thereon. He has taken the agency for Wilcox trucks.

The L. W. Thompson Co., dealers in accessories and supplies, have moved to 204 East Broadway, Louisville, Ky. They formerly were located at 605 Fourth avenue.

E. A. Krause is building a new garage at the corner of Court and Law streets, Allentown, Pa. It will be of brick, one story high, and will cost when complete \$1,500.

Van Dorn & Soss, formerly operating a garage in Seward, Neb., have purchased the O street garage in Lincoln from C. A. Wunderlich. Maxwell cars will be handled.

The Wallace DeWilde Co. has erected a new salesroom and garage at the corner of Clinton and Avon avenues, Newark, N. J. The company has the agency for the Cole "30."

The big Douglas Stables, at 165-67 Clymer street, Brooklyn, N. Y., are being converted into a garage. When completed the building will be occupied by the Williams-

burg Bridge Garage Co., which has purchased the property.

The United States Tire Co. has opened a depot for G. & J. tires at 511 North Capitol avenue, Indianapolis, Ind. Formerly these tires were handled direct from the factory.

Under the style of B. J. Bristol, Inc., a new concern has been formed at Utica, N. Y. Benjamin J. Bristol is the president and will deal in automobiles, motorcycles and other motor vehicles.

The Twitchell Motor Car Co., of Portland, Ore., has moved into larger quarters at Union avenue and Wasco street. It formerly was located at 342 Burnside avenue, where it sold Cole cars.

E. J. Montigny, of the Plaza Garage, Bedford avenue, Brooklyn, N. Y., has discontinued his agency for Abbott-Detroit cars and has taken on the Stutz car. He will cover the whole of Long Island.

H. A. Wetmore, Sioux City agent for Page-Detroit and Chalmers cars, has found his present quarters too cramped and has leased the two-story brick building on Sixth street, opposite the court house. The structure is 70x100 feet.

George K. Kimball, manager of the Franklin Square garage at Dover, N. H., is to continue in charge at that location. Reports to the effect that the garage had been sold led to the impression that the business likewise had changed hands.

J. L. Goff has purchased an interest in the Central Auto & Machine Co., of Knoxville, Tenn., and become its manager. In addition to handling several makes of cars the company will deal in accessories and supplies and maintain a renting service.

M. F. McCoole, president of the McCoole-Mercer Motor Co., of Oklahoma City, Okla., has purchased the holdings of his partner, B. D. Mercer, and will continue the business under the same name. Mercer has retired on account of ill health.

The E. E. Loving Auto Co., of Memphis, Tenn., has found its store at 251 Madison street too small for its needs and has moved into more commodious quarters at the corner of Madison and Manassas streets. The company handles the Cole car.

L. E. Barger, one of the partners of the Rambler Motor Sales Co., of Toledo, Ohio, has left the concern and opened salesrooms on his own account at 623 Madison avenue, the same city. He has taken the agency for Abbott-Detroit cars for Northwestern Ohio.

The Wright Auto Co., of Wichita, Kan., needing more "elbow room" for its garage

and repair shop, has opened larger quarters at the corner of Emporia avenue and First streets. Buick cars will be handled in addition to operating a first-class machine shop.

J. D. Vivian, a carriage dealer at Minneapolis, Minn., and W. S. Bailey, of the Bailey Auto Co., of Detroit, have formed the Punctureless Tire Co. of Michigan, with headquarters at 1193 Woodward avenue. They will handle the Dahl tire-filling material.

Isaac Craft, one of the owners of the Florida Gas Engine & Auto Supply Co., is building a three-story brick garage at the corner of Jackson and Marion streets, Jacksonville, Fla. He will make a specialty in rebuilding and dealing in second-hand cars.

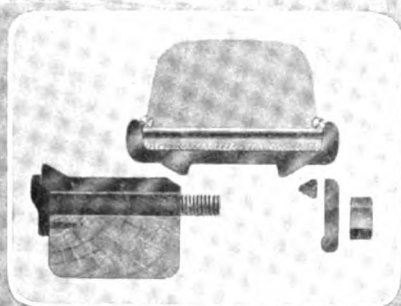
The dissolution of the Campbell Motor Car Co., of Davenport, Iowa, a few months ago has resulted in the transfer of the agency for Overland cars to P. C. Peterson, who operates a garage on Main street. Peterson also has the agency for Pope-Hartford cars.

H. H. Dillon, formerly of the Stitt-Dillon Motor Car Co., of Hastings, Neb., has formed a new company under the style the H. H. Dillon Co., with headquarters at 331 South Eleventh street, Lincoln, Neb. Besides doing a general garage business and dealing in accessories and supplies the company will sell Hudson cars.

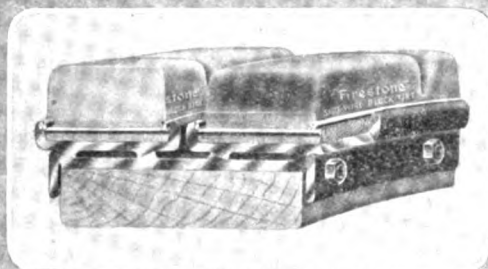
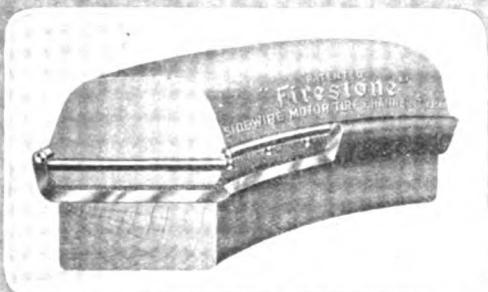
Charles Canfield, Algernon Holcomb and Aubert Canfield have formed a company under the style Canfield, Holcomb & Co., and purchased the Whitford garage at Rapid City, S. D. They have the agencies for four different makes of cars. P. Whitford, former owner of the garage, retires from business on account of his advanced age.

Under the style the Everitt Northwest Co., a new concern has "opened up" in Portland, Ore., with temporary headquarters at 688 Washington street, and George C. Nichols as manager. Permanent quarters are being prepared for the company at the corner of Seventh and Couch streets, formerly occupied by the Smith-Cleveland Co.

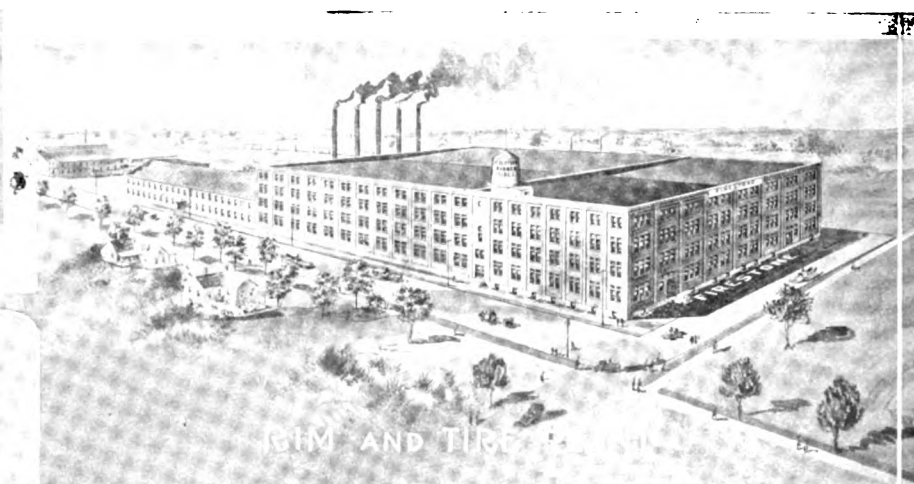
Baker Brothers, of Geneva, N. Y., and E. H. Green, of Buffalo, N. Y., have consolidated under the style the Baker Brothers Motor Car Co., with headquarters at 846 Main street, Buffalo, and a branch at Geneva. Clarence Baker will be in charge of the Geneva salesrooms, while E. H. Baker and E. H. Green will handle the Buffalo end. Cole "30" cars form the mainstay of the concern.



QUICK REMOVABLE

DUAL QUICK
REMOVABLE BLOCK

SIDE WIRE



RIM AND TIRE

The demand

for Firestone Tires and Rims has grown phenomenally, and

The facilities

for taking care of this unprecedented growth have expanded proportionately until today we are operating the largest exclusive tire manufactory in America—but

The policy

has not been changed. It is the same today as it was when we started, a few years ago, in the diminutive plant shown above—"the best irrespective of cost—the most miles per dollar."

The Firestone Tire & Rubber Co.

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PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

Joseph Goodman, President. R. G. Betts, Treasurer.
F. W. Roche, Secretary

154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) 10 Cents
Foreign and Canadian Subscriptions \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, AUGUST 31, 1911.

Some Accessory Makers' Problems.

Big orders from motor car manufacturers for equipment accessories are not always unmixed blessings for the accessory maker who receives them. Sometimes they are too big, and the accessory maker would be shortsighted to accept them, even when he could supply the goods.

This situation is particularly true of accessory makers who are bringing out new offerings that have not as yet gained wide general recognition, but that are sufficiently meritorious to attract the attention of motor car manufacturers as being suitable for equipment. The respective outputs of some automobile factories have grown to such enormous proportions that one or two equipment orders from the larger plants would swamp an accessory manufacturer who did not have extraordinary production facilities.

In cases where the accessory maker, by straining, might fulfill the requirements of

a big-quantity equipment order, but with little or no margin to spare, the decision is sometimes difficult. Despite the closer prices that must be made on equipment orders, there is an attraction about having the whole selling end settled for the season, so that the accessory maker will have no bother with it and may devote himself purely to the manufacturing end. For the time being, at any rate, all the difficult problems relating to a sales organization are eliminated.

There are decided drawbacks, however, if the accessory maker wishes to consider himself something other than a mere departmental manufacturing manager for the car builder. In devoting himself to filling equipment orders that tax his manufacturing capacity, he delays or sacrifices his progress in the general market. If after a period the equipment customer or customers should demand still lower prices or should leave him in the lurch, he is without an outlet and without a sales organization.

For this reason an accessory maker sometimes finds it the best policy to secure his place in the general market first, before attempting to accept equipment business that would take the greater part of his output. By advertising and sales effort directed toward the jobbers, the retailers and the public, he establishes his product as a recognized and standard article and he becomes correspondingly independent of the caprice or vagaries of equipment buyers.

Another advantage of this method, provided he entertains any idea of having a general outlet to the retail trade, is that it does not compel him to disclose rock-bottom quantity prices previous to dealing with the jobbers and the large retailers. Upon introducing goods to the jobbers it is the common experience that the latter will hold off so long as there is a possibility of securing better prices than those offered as the jobbing figures. With no data to aid them, however, they cannot confront the accessory maker with arguments that he is at that very time making better prices to other customers than to them.

If, on the other hand, he is dealing with the automobile manufacturers on an equipment basis, he may be making prices to them that are considerably under the quotation he is willing to make to jobbers. No matter how carefully he tries to conceal these equipment prices, however, the jobbers are pretty sure to know of them,

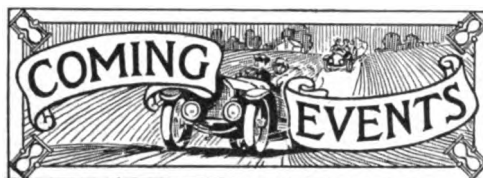
and to use them as a club. If equipment prices are made to manufacturers after the jobbers have been handling the goods for some time there is very little need for friction. The jobbers may demand concessions equal to those made to the equipment buyers, but if they do not get them they will not necessarily cease to handle the goods, whereas in the first instance they might refuse to take them on.

Elements Lacking in Road Races.

Besides affording an effective and painful illustration of the need of extreme caution in the supervision of grandstand construction, the meet at Elgin served to emphasize the notion that affairs of the sort lack the snap of visible conflict that is inherent to well-conducted track racing. As such affairs go, the races at Elgin were ably and efficiently carried through. Ample provision was made in the way of bulletin boards, the course was kept clear, the roads were in good, though slippery, condition. Barring the lamentable affair of the ill-conceived grandstand and the unavoidable accidents it probably was as successful a meet as could be desired; that is, from the standpoint of management.

Despite its elements of success as a popular attraction, however, a certain indefinable something was lacking to render it thoroughly satisfying. Following the nearly five hours contest of Saturday the familiar objection was voiced that as a race the affair had been tedious and uninteresting. To those thoroughly acquainted with "the game" it proved nothing of the sort. Analysis of the scores indicates that there was competition of the keenest sort; real sport, with all the elements of hazard, opportunity for skill and quick decision and for precise maneuvering that differentiate between a race and a mere exhibition of speed and daring. From the viewpoint of the drivers themselves the officials and the pit attendants it was a race in every sense of the word. Yet without the technical knowledge of the trackside or the ability to figure time allowances and averages quickly and accurately, this element in a measure was unrecognized by the average spectator.

And this, in a word, is the common difficulty with all road races. The old-time thrill which the mere sight of a passing contestant used to inspire has worn away with the seasoned racegoer. Likewise the intense concentration that used to be de-



Sept. 1, Oklahoma, Okla.—Reliability contest under auspices of the Daily Oklahoman.

Sept. 2, Pottstown, Pa.—South Jersey Motor Club's race meet.

Sept. 2-4, Brighton Beach, N. Y.—Race meet under management of E. A. Moross.

Sept. 3, Columbus, O.—Columbus Automobile Club's 200 miles track race.

September 2-4, Amarillo, Tex.—Panhandle Automobile Fair Association's race meet.

September 2-4, Kansas City, Mo.—Automobile Club of Kansas City's race meet.

Sept. 4, Denver, Col.—Denver Motor Club's race meet on motordrome.

September 4, Salem, N. J.—South Jersey Motor Club's race meet.

Sept. 4, 5, 6, Old Orchard, Me.—Old Orchard Automobile Association's beach races.

Sept. 4-10, Winnipeg, Canada.—Canadian national reliability tour from Winnipeg to Edmonton, 997 miles.

Sept. 7-8, Philadelphia, Pa.—Philadelphia Auto Trade Association's race meet.

Sept. 7-9, Hamline Track, Minn.—Minne-

sota State Automobile Association's race meet.

Sept. 7-10, Buffalo, N. Y.—Reliability contest under auspices Automobile Club of Buffalo.

Sept. 9, Bologna, Italy.—International road race for the Italian Grand Prix over the Bologna circuit.

Sept. 9, Hartford, Conn.—Connecticut Fair Association's race meet.

Sept. 9, Port Jefferson, L. I.—Automobile Club of Port Jefferson's hill climb.

Sept. 9, Cincinnati, O.—Cincinnati Fern Bank Dam Association's road race.

Sept. 12-13, Grand Rapids, Mich.—Michigan State Automobile Association's race meet.

Sept. 15, Knoxville, Tenn.—Track meet, Appalachian Exposition.

Sept. 16, Syracuse, N. Y.—National Circuit track meet, State Fair grounds.

Sept. 18-20, Chicago, Ill.—Reliability contest for motor trucks, under auspices of Chicago Motor Club.

Sept. 18-22, Detroit, Mich.—Automobile show in connection with the Michigan State Fair.

Sept. 19-23, Burlington, Vt.—Burlington Merchants' Protective Association's reliability run.

Sept. 23, Lowell, Mass.—Road races under auspices of Lowell Automobile Club.

Sept. 23, Detroit, Mich.—State Automobile Association's race meet.

voted to every move in the contest. Road racing has become more of a diversion and less of an epochal event with the passing of the years and the increased frequency of repetition. The slackening interest of the later portions of any great affair of the sort is a natural outcome of familiarity with the outward aspects of the race and of an equally natural ignorance of the finer elements. These always have existed and always will exist in any great race. To increase the zest of the contest for the average onlooker they should be rendered visible; the relative positions of the cars, the meaning of every change of place, every delay, should be translated for the benefit of the public.

The obvious requirement is for a simple method of scoring and for an equally simple and understandable form of score board. Charts and diagrams in great variety have been prepared with this in view, but all or nearly all have the fault of real or apparent complication. The training necessary to comprehend the automatic score card is a barrier to its success as a means of popularizing the technique of the road race. What would be more to the point would be some form of graphic score board; an equal in simplicity and accuracy of the baseball reporting chart, for example.

We are learning the art of successful promotion and management, we are learning to produce competition of the cleanest and liveliest sort and we are taking such measures as we may to guard the sport against the risks that in the lurid light of the sensational press sometime have threatened to curtail its development. But we have yet to learn to stage long distance races in such a manner as to render them wholly diverting to the casual spectator from beginning to end.

Substituting Names for Model Numbers.

After the manner in which the automobile industry is not unwont to seek inspiration co-operatively, it has been borne in upon a number of manufacturers simultaneously and with suddenness that the mathematical method of designating car models is unfair to the public. Henceforth several makes of car will be distinguished, collectively and individually as types, by names; rather high-sounding and alliterative names, it is true, but still names that are easier to remember and more pleasant to pronounce than the numerical cryptic

which they supplant. Thereby the owner of one of the new cars may describe his possession to the neighbors without resort to a volley of technical sounds, and thereby also the confusion of nomenclature which the industry already bemoans, may be somewhat increased. But no matter so long as the part of the automobile vocabulary which the motorist himself must assimilate is rendered measurably simpler and non-technical.

The idea really began several years ago, of course, when one maker named a model, which is perpetuated to this day, after a certain race that its prototype had won. Up to now, however, the employment of names rather than numbers by way of car designation has attained no conspicuous popularity. Instead, hyphenated horse-powers, antedated yearly marks, distinctive numerals and qualifying numerals have been prefixed to the name of the particular class of vehicle, until considerable skill was required to accomplish a satisfactory translation. One maker even went the length of developing a numerical cipher, in which,

according to the "key," certain digits represented the year of manufacture, certain others the power, others the style or series, and still others the serial number of the individual machine. The result was impressive, to say the least.

The only excuse for the numerical designation was, and is, its usefulness in facilitating correspondence and the ordering of parts. Such systems naturally will continue to be used in shop and sales practice, but they really need not disturb the individual motorist. In the production of some of the older French cars, it was customary to employ a variety of type symbols. A motor of one style, a change gear of another, a chassis of a third, would be combined to form a complete vehicle, which would be known by still another distinguishing mark. Yet it is not on record that any owner of such a car ever bothered to learn more than the characteristic that distinguished the body. That, and perhaps the horsepower, though the latter usually was understood to be a more or less fabulous quantity.



ZENGLE WINS ELGIN CUP IN STRIKING CONTEST

Great Crowd Sees Grant Take Second Place with Hughes, Kane County Winner, Third — Nationals Run One-Two for Illinois, While Aurora Falls to Roberts — Two Meet Death on Course and Grandstand Tumbles.

ELGIN NATIONAL TROPHY—305.26 Miles, 36 Laps

Driver	Car	Time, Hrs. Min. Sec.
1—Len Zengle.....	National	4 35 39.08
2—H. A. Grant.....	Alco	4 41 58.72
3—Hughie Hughes.....	Mercer	4 42 9.97
4—F. H. Lee.....	Alco	Flagged on 32nd lap

Average speed, 66.42 miles per hour.

ILLINOIS TROPHY—203.35 Miles, 24 Laps

1—Don Herr.....	National	3 5 55
2—Charles Merz.....	National	3 6 4
3—Rupert Jeffkins.....	Velie	Flagged on 21st lap

Average speed, 65.6 miles per hour.

KANE COUNTY TROPHY—169.46 Miles, 20 Laps

Driver	Car	Time, Hrs. Min. Sec.
1—Hughie Hughes.....	Mercer	2 37 21
2—W. F. Barnes.....	Mercer	2 39 55
3—W. H. Pearce.....	Colby	2 45 55

Average speed, 63 miles per hour.

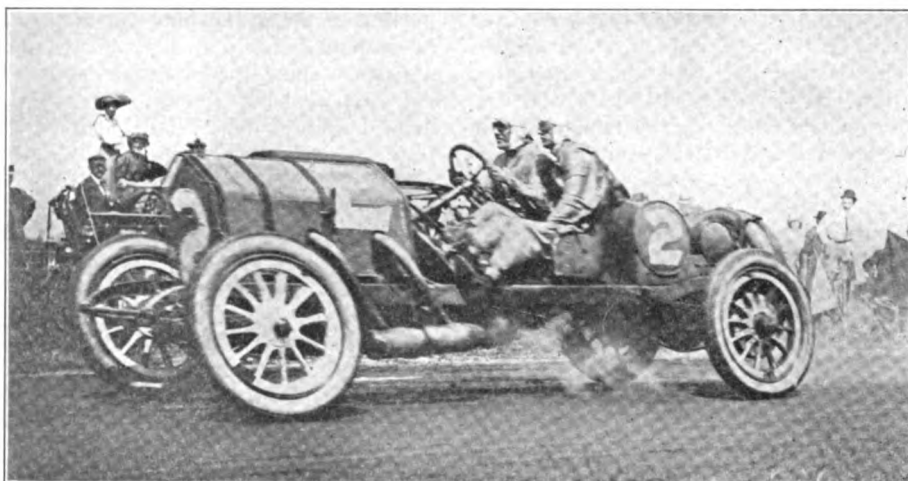
AURORA TROPHY—135.57 Miles, 16 Laps

1—Mortimer Roberts.....	Abbott-Detroit	2 31 11
2—Frank Kulick.....	Ford	2 39 37
3—A. M. Robbins.....	Abbott-Detroit	2 46 56

Average speed, 53.5 miles per hour.

ELGIN, Ill., Aug. 26.—Elgin has had its fill of road-racing—for another year at least. When Len Zengle, driving his 40-horsepower National, plunged under the banner that marks the starting and finish line of the eight and one-half miles course for the 36th and last time this afternoon, thereby declaring himself winner of the Elgin National Trophy, the two most exciting days this city ever has known officially came to a close. There remained only the exodus of a hundred thousand people and more who had gathered from far and wide for the meet, which was conducted by the Chicago Motor Club and promoted by the Elgin Automobile Road Racing Association. That in itself was more than a passing show.

Zengle's winning drive was accomplished with steady, persistent care, and without a single delay, without a single change of tires and with but one stop, that on his twenty-fifth lap, for gasoline and oil. His method was that which has characterized the driving of Harry A. Grant in the Alco, Vanderbilt Cup winner, and Zengle's nearest competitor in the race, who finished six minutes and 18 seconds behind him. Zengle's time for the 305.26 miles was 4 hours 35 minutes and 39.08 seconds. His average speed was 66.42 miles per hour, or nearly four miles an hour faster than that of Ralph Mulford in winning the corresponding event one year ago. Mulford himself covered the fastest lap of the meet, his seventh, in seven minutes and 13 seconds. It was his only consolation. He finished but one more lap after that momentary triumph and was forced to retire with a burned-out connecting rod bearing when



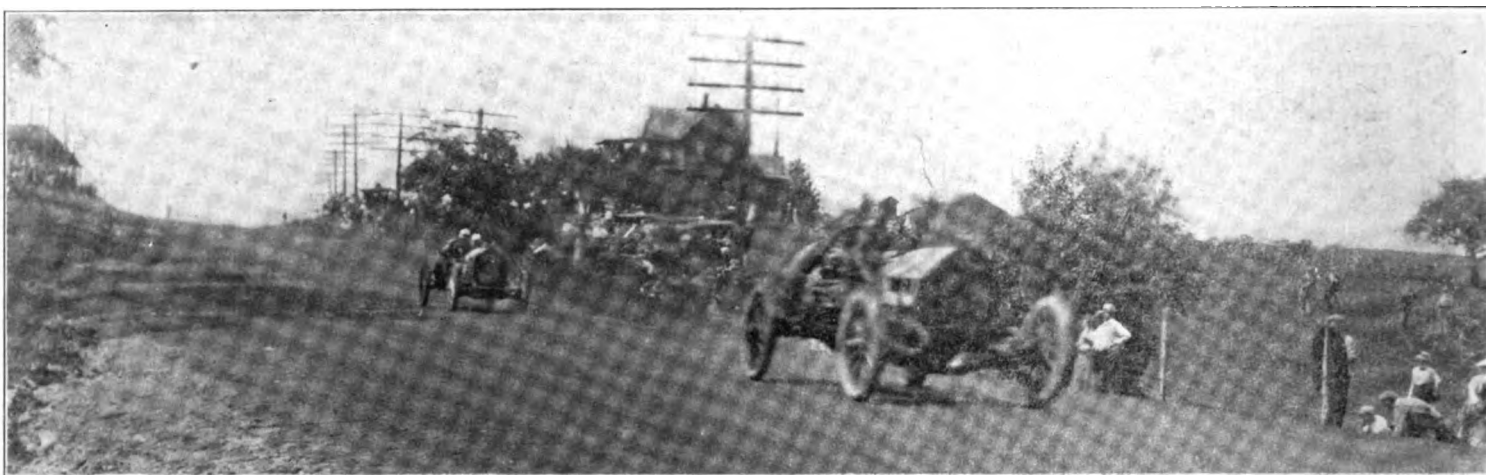
A REMARKABLE IMPRESSION OF SPEED—ZENGLE'S FLIGHT IN THE WINNING NATIONAL

about half way around his ninth circuit.

Hughie Hughes provided one of the surprises of the day when he finished third in the Elgin event, only 11 seconds behind Grant. Previously he had won the Kane county race of 169.46 miles, making the 20 laps in 2 hours 37 minutes 21 seconds, as against 2 hours 37 minutes 27 seconds, his time for the first 20 laps in to-day's race. The contests for the Illinois, Kane county and Aurora trophies, the first and last at distances of 203.35 and 135.57 miles, respectively, were run concurrently yesterday as a curtain-raiser to the principal race. The Illinois was wholly a National event, Don Herr winning in 3 hours 5 minutes 55 seconds, while his teammate, Charles Merz, was but 1 minute and 51 seconds behind him in point of elapsed time.

Mortimer Roberts, driving one of the two Abbott-Detroit entries, captured the Aurora trophy in 2 hours, 31 minutes 11 seconds, just eight minutes ahead of Frank Kulick, who piloted a Ford.

While Zengle, Herr, Hughes and Roberts were winning respectively the Elgin National, Illinois, Kane county and Aurora trophies in the two days' meet, two drivers and one mechanic were killed and six or seven spectators are temporarily laid up from injuries received. All in all there was sufficient excitement to last Western motorists for a long time, for with the death of Drivers Ireland and Buck and Mechanic Jacobs came a collapse of a section of the immense grandstand, letting close to a thousand people down to earth from heights of from one to 12 feet.



PEARCE (COLBY) MAKING FAST SPURT DOWN HILL WITH MERZ (NATIONAL) CLOSE BEHIND

The officials of the two promoting bodies for weeks had been making preparations for the big event. They had widened, smoothed and oiled the roadway; they had eased the turns; they had shut off the farms by fencing; they had built substantial and commodious judges' and press stands, in fact they had done everything to make the event a howling success.

As was the case last year portable grandstands were used—the same that were used at Chicago's recent military tournaments and the aviation meet, and which heretofore never—so far as recorded—had given way. But in order that the grandstand could be placed on a level, to make up for the unevenness of the cornfield, the West end was built up three or four feet, being placed on posts set in the ground and, it is believed, improperly braced. When Grant was coming down the homestretch at the end of his first lap fully a thousand people arose to see and to give greeting.

At this instant, and without a word of warning, with hardly an outcry, with hardly a cracking of timbers, the West end, embracing some ten sections of the stand settled, slowly and wave-like, with hun-

dreds of feet and arms aloft. It was over in a moment. People stood transfixed, while Zengle, Buck and Wishart and other race drivers whisked by at 70 miles an hour.

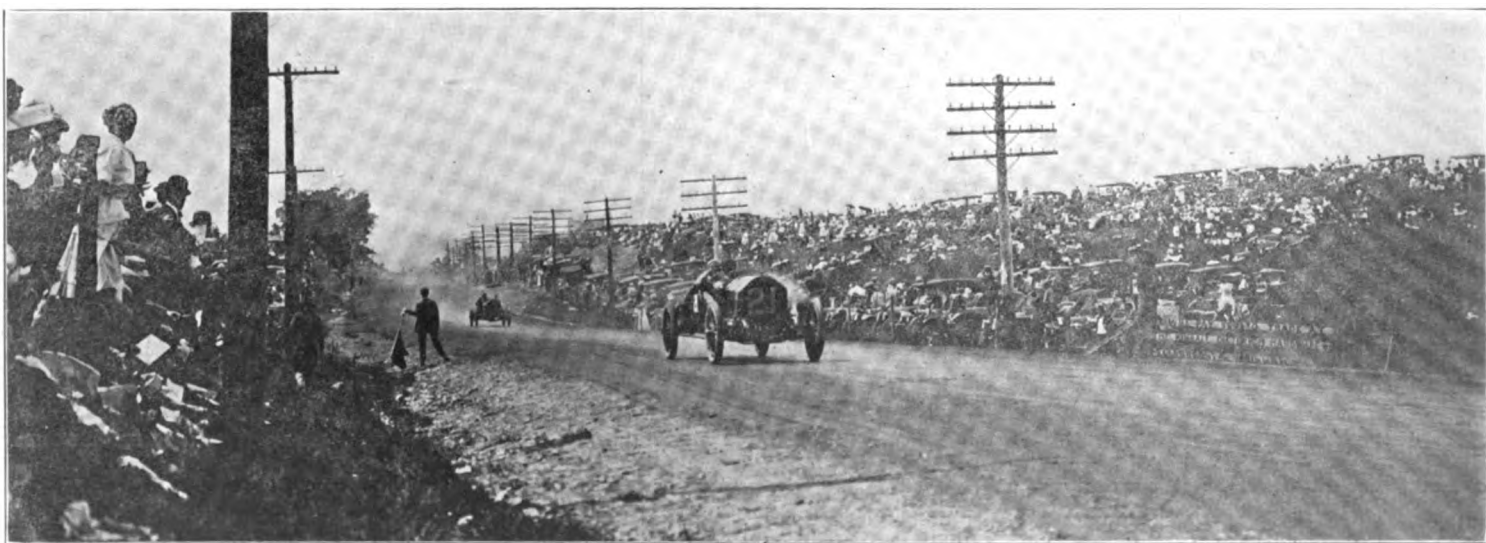
The militiamen were alert and crowded back the few who attempted to break on to the track and to stampede, and be it said to their credit they quickly subdued the attempt. The people in the remaining portion of the grandstand did not, strangely enough, become at all panicky and this notwithstanding the fact that it was apparent that at least several score of people must be killed or at best maimed. Still they sat, except a very few, while aid was rushed to the unfortunate mixed up in the debris. Little by little people began pulling themselves out from among folding chairs and as fast as possible those not hurt were requested to give room for the rescuers.

In the meantime the officials had become wildly excited. Starter Wagner directed the yellow flag to be waved to warn the drivers of danger, but a couple of overzealous officials—and there was a surfeit of officials both on and off the track—grabbed a couple

of the checkered flags and waved them in the face of at least three of the drivers, causing them to stop. This meant that all had to be stopped, and the race restarted.

The restart was delayed 50 minutes and in the meantime the hospital corps was busy giving first aid. Ambulances took away a couple of those having suffered most, while several touring cars were pressed into service to act as ambulances. A number of persons had slight bruises and scratches and one woman had a severe double fracture of the ankle. These were rushed to St. Joseph's hospital and those with lesser injuries were cared for in the field hospitals near at hand. The total casualty list, despite exaggerations in the daily press, totaled but seven, whose injuries were more than trivial.

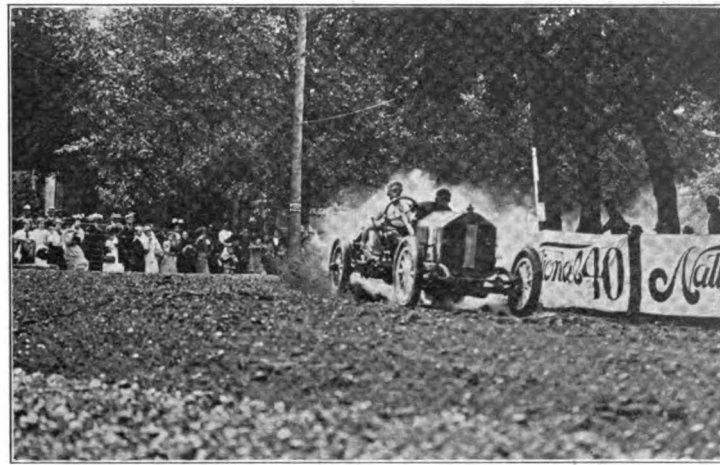
The only fatalities in connection with the meet occurred in accidents to the racing machines. During one of the practice days early in the week Ralph Ireland (Staver-Chicago) was wrecked as he turned out to let another car pass. Ireland died in a hospital a few hours later. On Saturday, while on his 25th lap in the Elgin race, David Buck, driving a Pope-Hartford car,



PEARCE (COLBY) CLOSING UP ON MORRIS (COLE) JUST ABOVE THE GRANDSTAND



ROBERTS (ABBOTT-DETROIT) AVOIDING A SKID



HERR (NATIONAL) AT HORNBECK'S TURN

and Samuel Jacobs, his mechanic, were killed as the result of a burst tire. Jacobs was killed outright and Buck passed away a short time after being taken to the hospital. It is noteworthy that the projected banquet of the Chicago Motor Club to celebrate the meet, on Monday, will not be held, the members of the club attending Buck's funeral instead.

In two other accidents on Friday serious consequences were narrowly averted. John Raimy, driver of a Cino car, and F. E. Radina, his mechanic, had a close shave when their car turned over after a skid on the seventh lap. Raimy escaped with bruises, but Radina suffered a compound fracture of the leg. Fred Robillard collided with a telephone pole when his Staver-Chicago threw a tire at the Hornbeck turn—choosing that alternative to charging into the crowd. Both he and W. G. Reid, his mechanic, were badly shaken up in consequence, though neither was seriously hurt.

The course was guarded by detachments of the Illinois militia, which had been in

camp near Elgin for several weeks, and there were also a couple of hundred special deputy sheriffs, the course being a mile and a half outside the city of Elgin. Good discipline was maintained at all times—even, as already indicated, during the stress of the few moments following the collapse of the grandstand.

The course had been worked for the past three months and was naturally faster than it was a year ago. Then it was simply a country road, widened in a few places, the wrinkles taken out, a bridge being built, the turns fixed up and the surface treated with 50,000 gallons of oil. This year the homestretch was made 54 feet wide for over a mile, the turns were made easier, narrow places were widened and, all in all, it had a much more uniform width, permitting the cars to pass one another without slackening at all and also permitting a few brilliant brushes down the stretch.

It had been generously oiled, but it was slippery as a result of too much oil or not enough sand thereon. But that it was

faster is shown by the increase in the average mileage from 62.5 to 66.4 per hour.

The grandstand was materially larger, with the boxes at the top and covered with canvas. The same cement pits were used, but a 20-inch heavy board guard was placed all along to prevent the possibility of a car skidding into the pits.

The judges' and timers' stands and the press stand were made considerably larger and were more substantially built, accommodating all who made application for seats. In addition there was a guests' stand immediately east of the judges' stand, and this was occupied by invited guests, friends of officials and others.

The score board was on the top of the judges' stand and at six or eight places on the course there were large bulletin boards for the benefit of those who did not seek a position near the grandstand. The reports were telegraphed to these points, so that everybody around the eight-mile circuit had information of the race as it progressed.

How Three Races Were Run and Won on the First Day

Early Friday morning the procession of cars into town began and until the road closed at 10:40 there was a double line of cars and a few horse-driven rigs moving slowly into position along the course. At 10:40 a bomb was shot, which was a

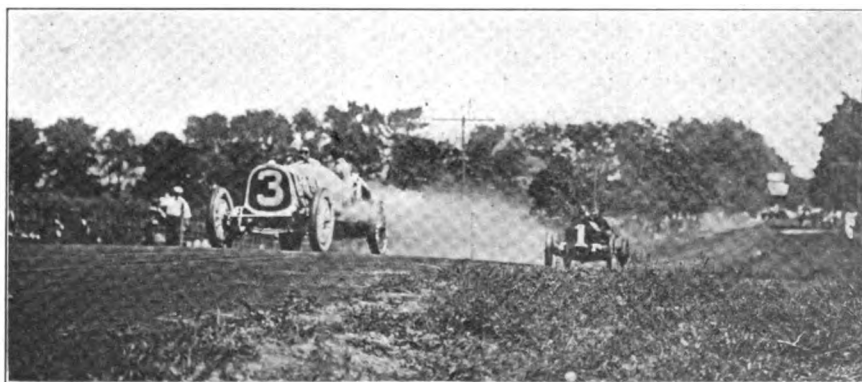
signal to close the course, and inside of five minutes every person was off the road. A few minutes before the time of the start, 11 o'clock, another bomb was fired and again still another as the first car was sent off, so that those away from the grandstand

were kept aware of all that was going on.

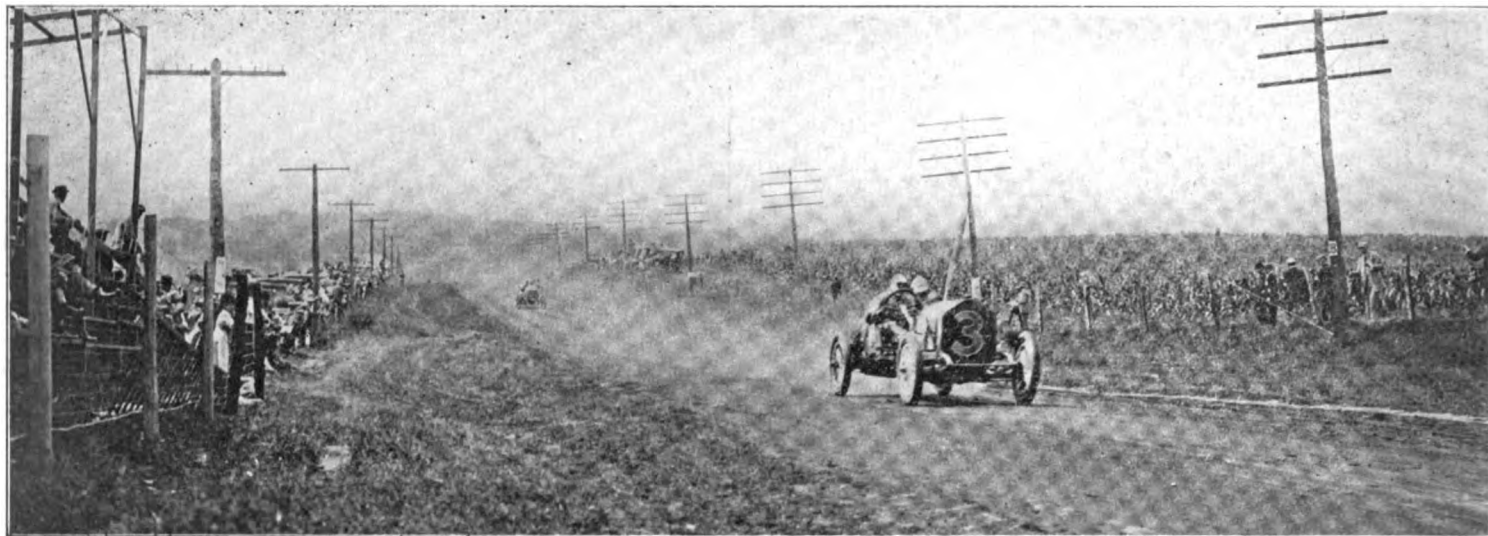
As in all merry-go-round races the contestants were started in groups. First, competitors for the Illinois trophy, Herr, in the National leading, were dispatched at half-minute intervals. Followed the Kane



ZENGLE (NATIONAL) IN LEAD OF GRANT (ALCO)



THE ILL-FATED BUCK (POPE-HARTFORD) LEADING GRANT (ALCO)



MERZ (NATIONAL) LEADING ROBBINS (ABBOTT-DETROIT) IN THREE-IN-ONE CONTEST

county contestants, Raimy, Cino, followed by Barnes, Mercer; Maisonville, Corbin; Hughes, Mercer—the ultimate winner—and seven others. Finally the three entrants in the Aurora trophy contest, Robbins, Abbott-Detroit; Kulick, Ford, and Roberts, Abbott-Detroit, were dispatched. But before Monkmeier, whose Staver-Chicago was the last of the Kane county aggregation to leave the tape, had received the word, Herr had finished his first lap, making it in 7 minutes 37 seconds.

For a second time the Illinois trophy fell to the National, this time Donald Herr, for years an employe of the Indianapolis concern which entered the car, being the winner, while his teammate, Charles Merz, was second, only 9 seconds behind him. It was, as before stated, a National race all the way and was devoid of interest except as to which National would prove the winner.

When the two big blue cars had finished, the two Velies were still running, the No. 2, driven by Jeffkins, having completed 20 laps, while the No. 4, driven by Stickney, had covered only 16 laps.

Herr went right out at the start and before the end of the first lap Merz had passed Jeffkins and was hot after his teammate. At the end of the fourth lap Merz had gained 10 seconds on Herr, but having started a minute after had not overhauled him. So far as positions went Merz was then in the lead by a small margin and this he held until he had completed the eighth lap, when he was seven seconds to the better of his teammate. Then Herr began moving up and after the ninth lap had been recorded he was ahead of Merz, having gained 19 seconds in that lap and putting himself ahead by the close margin of 12 seconds. It was a case of near see-saw, but at all times from the ninth up Herr had a slight lead. This lead, counting by laps, was as follows: Tenth, 42 seconds; eleventh, 43; twelfth, 63; thirteenth, 54; fourteenth, 37; fifteenth, 20; sixteenth, 15;

seventeenth, 23; eighteenth, 34; nineteenth, 36; twentieth, 25; twenty-first, 27; twenty-second, 36; twenty-third, 27; twenty-fourth, 9.

Thus neither had much of an advantage, while the consistent running of both cars all through is plainly evident. Merz lagged a little once because he ran past the Hornbeck corner when his brake failed to work soon enough because of grease, and rather than risk taking the turn ran straight down the road, which had been fenced off to take care of just such emergencies. Then he had to back up and get away again, losing the little advantage he had been gaining and keeping him behind the other National, which was humming along at a speed which was rapidly breaking the course record established last year by Mulford in the Lozier, when he did 62.5 miles an hour.

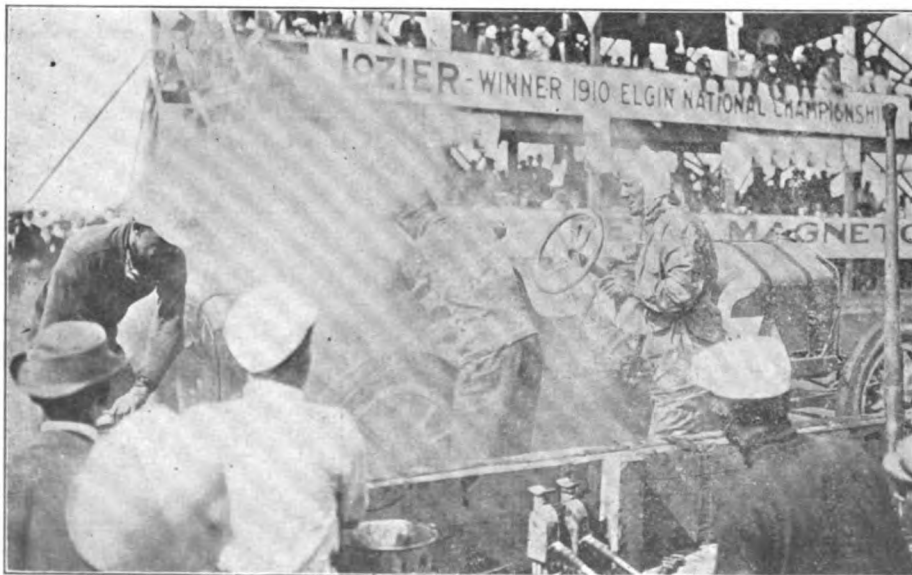
It is noteworthy that the nine seconds Merz lost to Herr in the first lap simply offset the nine seconds difference between the two National stars at the finish, so that

after the end of the first lap the average running time of the two cars was exactly the same.

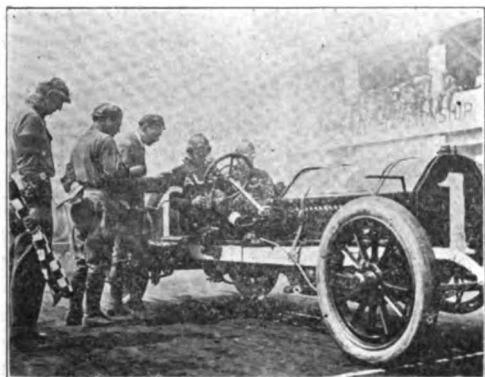
The Kane county trophy race had the largest field, there being fifteen nominations, but because of the financial troubles of the Fal Motor Co. the Fal cars were scratched and also the No. 26 Cino. This left eleven competing cars, which were sent away after the four Illinois trophy cars had been started at 11 o'clock sharp.

Hughes went right out to win, making the first lap in 7:40, as against 8:05 for the next man, Maisonville, in the Corbin, and 8:07 for Raimy, in the Cino. This gave Hughes the lead and never did he lose the premier position; in fact, he gained a little all along by degrees. But Barnes, his teammate, kept up a steady plug and at the end was only a little over two minutes back of first place.

Raimy's No. 11 Cino went out in the seventh lap, when he skidded and broke a wheel, slightly injuring his mechanic and



ACTION AT THE PIT'S ZENGLE'S FIRST AND ONLY STOP



"GOING, GOING—"

stunning the driver. Ogren had to quit the race in the sixth lap because of a seized piston in the engine of his Colby, but Armstrong's Colby No. 22 was permitted to keep going until the end of the Illinois race, at which time he had covered fourteen laps. It must be said of all the Colbys that they were extremely new, having had practically no work-out and naturally were too stiff to perform well in such a fast race as this proved to be.

Pearce's Colby No. 20 and Jenkins's Cole No. 24 ran a see-saw race for third place, the former gaining the advantage in the first lap and along towards the end, but at no time losing the lead over the Cole entry. Maisonville's Corbin No. 13 and Morris's Cole No. 21 had a similar race all to themselves, while Monckmeier, in the Staver-Chicago, was hot after these two all the time. But he lost many valuable



"GONE!" GRANT (ALCO) FIRST TO START

moments due to a leak in his oil tank and but for this should have been well among the leaders at the finish, as the car ran consistently all the time. Robillard, the driver of the Staver-Chicago entry No. 25, was eliminated in the seventh lap, when he threw a shoe on the Hornbeck turn, went wide and to avoid going into a dense crowd back of a fence, steered straight into a telephone pole, stopping the car, cutting down the pole and putting the car out of the race.

Much had been expected from Frank Kulick in the little Ford, but while the car was fast enough it was so light that Kulick said he dared not let it out. There were but three entries in the Aurora contest, and all started and finished, although the time made last year was not quite equaled. Roberts started out from the word go and just caught Kulick in the first lap. In the

fourth lap he had caught his teammate, Robbins, and from this on it was his race, providing he could dodge mechanical or other trouble and just "keep a going."

Both Roberts's Abbott and Kulick's Ford hummed along without trouble and without stopping, making a steady pace and keeping it up, with Roberts gaining a little all the time. Robbins, who handles the Abbott in Chicago and who never drove a race before, had magneto trouble, the coupling becoming loose and requiring nine minutes to discover where the difficulty lay. Even after it had been fixed, in a few moments, it again gave trouble, and when finally repaired Robbins had lost a lot of valuable time. As it was he was only fifteen minutes behind his teammate at the finish, so that barring the magneto trouble his performance was a remarkably creditable one.

How Zengle Captured a National Trophy with a National Car

Len Zengle captured the western classic, the Elgin National trophy race, not only by brilliant driving but by consistent running of the National Forty, which he drove. But he did not make his win without oppo-

sition, for Grant, in an Alco—and favorite with Mulford for the honors—kept him on the job every minute. Had Zengle been delayed to any great extent he might have lost, but as it was he finished ahead of

Grant by 7.02 miles, being 6 minutes 18 seconds in the lead in the matter of time.

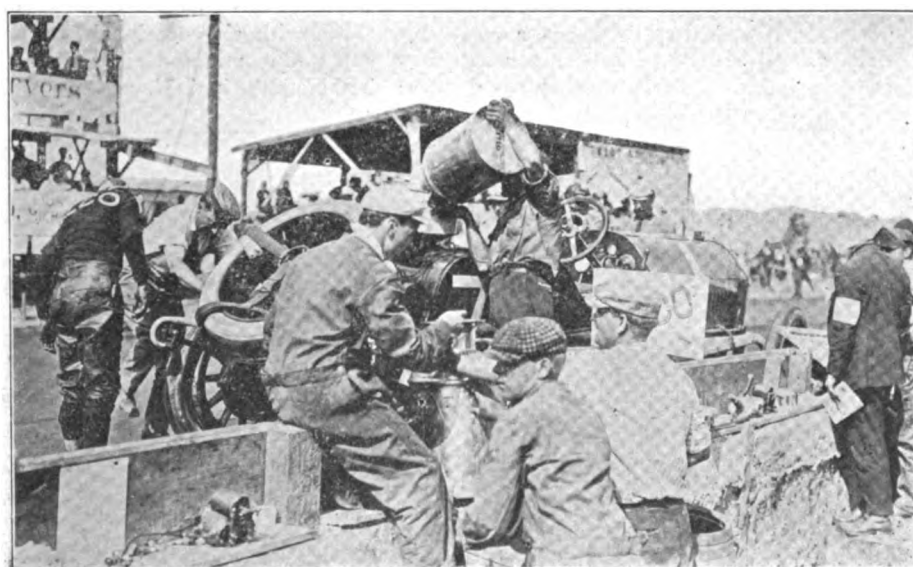
The surprise of the two days of the meet was the splendid showing made in this event by Hughes in the little Mercer, for he not only finished third but was only 11 seconds behind Grant and had been steadily cutting down Grant's lead of 4 minutes 4 seconds in the nineteenth lap.

There were surprises galore in this event, for favorites were bowled over without mercy, and then it became a race between Zengle's National and Grant's Alco, with Hughes's Mercer a possibility, providing something happened to the two big fellows.

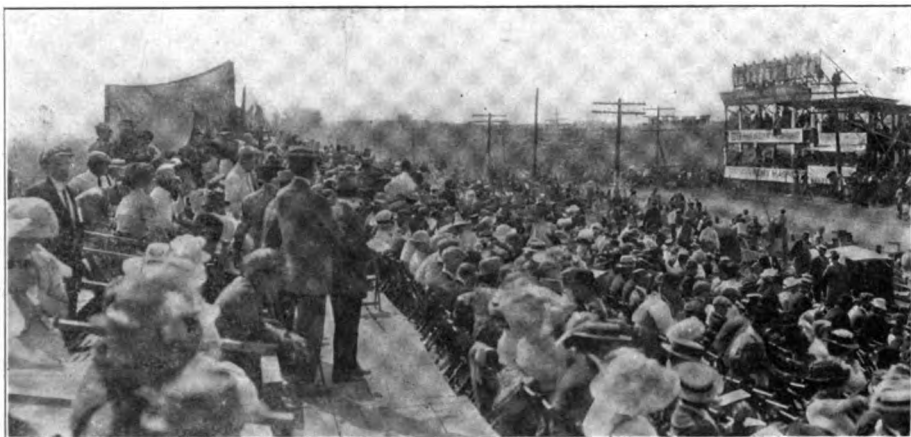
Ralph DePalma was the first to be compelled to quit, a broken flywheel—the same trouble that Wishart had experienced in practice—putting him out of the running in the third lap. He had not made phenomenal time in the two laps, however, but he did reel off the second in 7:20, which is almost 70 miles to the hour.

On the same lap Aitken withdrew his National because of a cracked cylinder, which he discovered in the first lap, both laps being slow because of the trouble.

Then Wishart found engine troubles and was compelled to quit because of a broken



HARTMAN'S ALCO IN A MOMENT OF FEVERISH ACTIVITY



THE CROWD ON THE STAND WAITING TO BE THRILLED

connecting rod after he had gone four laps at a pace which, if kept up, would have made him a factor in the race.

Mulford had been going great guns right from the jump, for he knew too well that, being a prime favorite with the crowd, it would be up to the other contestants to go after him above all others. He was feared, too, for some of the drivers openly stated that they would have to go after him in order to make him keep going and thus force him out. That he "went" is shown by the lap times, being from the first 7:27, 7:14, 7:19, 7:17, 7:18, 7:17, 7:13, 7:17, an average of approximately 7:18, or a shade under 70 miles to the hour. But this terrific pace was more than the motor could or did stand, for a connecting rod bearing was burned out and Mulford stopped at the end of the ninth lap.

Three cars, DePalma's Simplex, Mulford's Lozier and Aitkin's National, were shoved to one side of the road at the west end of the pits, and they formed the national colors—red, white and blue—as they were lined up, dead to the race.

The two Cino cars had been scratched, because one was wrecked and an accident had happened to the other in practice, leaving only ten out of the twelve entered to start. The two Simplexes, Aitkin's National and Mulford's Lozier being out,

there were now only six cars left—the three Alcos, Zengle's National, Buck's Pope-Hartford and Hughes's little Mercer.

Hartman's Alco was making a nice showing and drilling along in third and fourth positions until the twenty-first lap, when a bad leak was sprung in the gasoline tank and the car was withdrawn.

The ill-fated Buck had not been a factor from the start because of tire troubles. He was a little slow, making the first lap in 8:53, but he had stated that he intended driving in a conservative fashion and preferred coming home with his neck to winning the race. His second lap was timed at 25 minutes, 53 seconds, and from this time on he lost ground through tire changes. He would come to the pits, take on a new tire and dash away, only to come around for another tire, having made the change on the road and having come in on the rim nearly every time. He was not eliminated, however, until the twenty-fifth lap, and he had expressed his intention of going that one lap and quitting; realizing that he was then seven laps behind the leaders and had no chance for the race. He knew he could not finish because he started on his twenty-fifth lap with his last spare casing. It was literally his last lap, too, for it was on this that a tire burst and sent the car into the ditch, turning over,

righting itself and dashing straight for two militiamen, one of whom was knocked down by the car in its flight.

Buck was in the ditch on the first lap, but was soon on the road after a tire change. He took on new tires in the fourth, fifth and eighth laps, and when he came to the pits at the end of the eighth the casing was wedged between the spring hanger and the wheel, with the tube dragging and the car running on the rim.

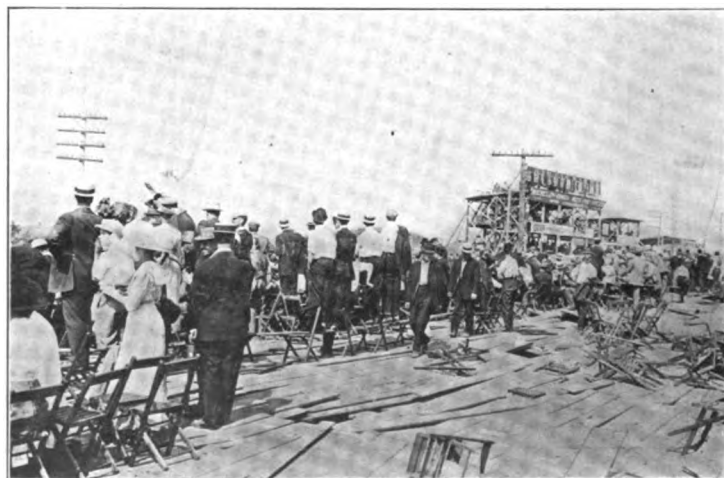
The race had narrowed down to Zengle and Grant for the two leading places and Hughes for third. Lee had been having some tire trouble and, while he kept up a good gait, was unable to overcome the delays. He made his first stop at the end of the twelfth lap to change tires, and this, with the change made on the road, set him back some eight minutes. The leaders had finished their thirty-fourth lap when Lee had covered thirty laps, so that he was out of it for anything better than fourth place.

Zengle made but one stop, in the twenty-first lap—177 miles—when he took on 15 gallons of gasoline and filled up his oil tank. Not once did he make a tire change, and after the race an inspection of all four tires showed not even a sign of a scratch or ruffle; in fact, except for discoloration, the tires looked as good as new. Zengle's fastest lap was recorded at 7:17, in the sixth, and his slowest at 8:28, in the twenty-first, when he stopped for fuel. His next slowest lap, while he was running, was the fourth at 7:54. It became apparent to the students in the press stand that Zengle was making just a little better time than Grant, for he was creeping up all the time. Grant made a stop at the end of the thirty-second lap for water, gasoline, oil and a tire change on the left front and right rear wheels. It required 80 seconds to do this work, whereas Zengle's stop required less than half a minute, so systematic was the work of the National crew.

Hughes in the meantime had been humming along at an even gait, doing laps in about 7:45, with an occasional one nearly as slow at nine minutes. His fastest lap was the thirtieth, in 7:34, and his slowest



VIEW SHOWING WRECK OF THE GRANDSTAND



VIEWING RACE FROM WRECKED GRANDSTAND

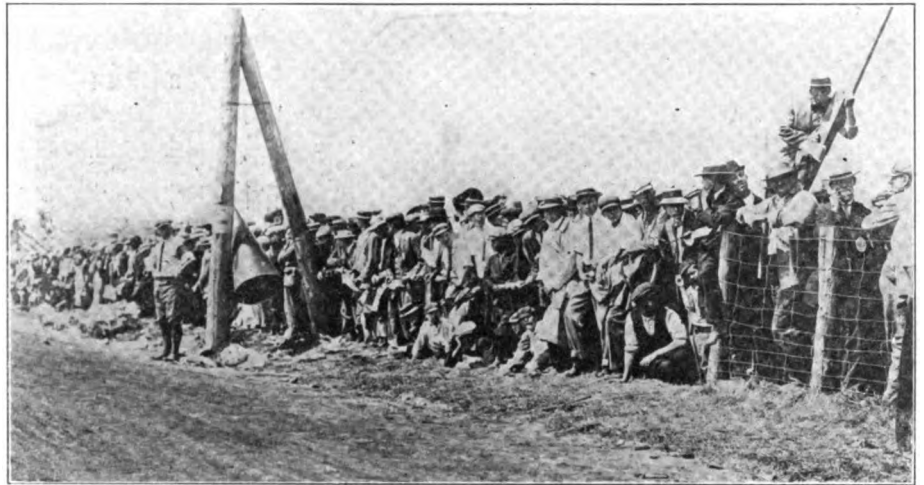
the nineteenth, 9:58. Hughes had a tire go in the thirteenth lap at parking space 58, but was soon on the road after taking about two minutes to make a change. In the twenty-second lap he took on gasoline and oil and changed a tire. The little Mercer was the admiration of not only the crowd but the officials as well, for all realized that it was doing good work making such a game fight against cars with greater power; all of the other cars to finish had at least $\frac{1}{3}$ greater piston displacement.

Grant was kept posted from the pit as to his position, and while he made a desperate effort to close up the slowly opening gap between his own car and Zengle's blue National, he had to be content with knowing that he was losing a little each round rather than gaining. Zengle simply drove, drove, drove, steadily and with a display of headwork, taking the turns with care lest he should make a false move and lose the race, which he knew was his because of his steady gain and with Grant's apparently hopeless task of holding, much less improving, his position.

The times for the laps show how Zengle gained little by little on his rival:

Lap	28	29	30	31	32	33	34
Zengle	7:41	7:39	7:45	7:34	8:27	7:52	7:46
Grant	7:46	7:42	7:43	7:28	10:17	7:51	7:51

Here, in these seven laps, Grant suffered



SHOWING HOW THE COURSE WAS KEPT CLEAR

a loss to Zengle of two minutes, six seconds—which means a couple of miles or better.

It was of course known the moment Zengle had crossed the tape that he had won, for he had started thirty seconds after Grant and had finished ahead of him. It seemed a long time before Grant hove in sight. The latter had started an even four minutes ahead of Hughes, so that by the time the four minutes were up Hughes was

in sight and until watches had been consulted it was no certainty that the two-time Vanderbilt cup winner had even made the second place secure from the little yellow car; but he had, by the close margin of 11 seconds.

As soon as Hughes had finished the checkered flag went up and the 1911 Elgin road race became history, with Lee's Alco running in fourth position at the end of his thirty-first lap.

Seen and Heard by a Wide-Awake Onlooker at Elgin

Elgin with all its state militia encampments and Grand Army meetings, never saw so many people in two days; the crowd of 1911 was fully twice that of 1910. Every available spot where sleeping accommodations could be secured was gobbled up early on Friday if it had not been taken and occupied a day or two before that.

The city was packed to overflowing because of the races. Private homes of all grades were thrown open to the visitors, the few and very commonplace hotels were jammed to overflowing, and the smaller places nearby, such as St. Charles, Geneva, Carpenterville, Dundee and Algonquin, held many, while a few emulated the Vanderbilt

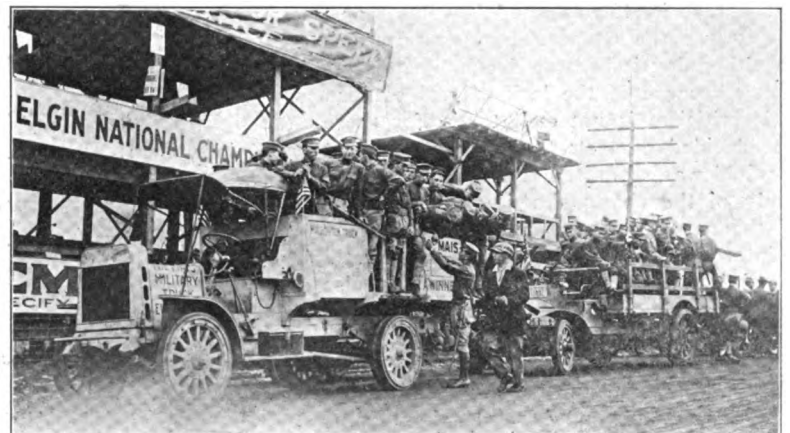
cup racegoers and slept in their cars around the course. It was also with some difficulty—at least some delay—that meals could be procured. It was too much for sleepy Elgin; it had forgotten last year's rush, and it did not relish it all, even if it did mean that several hundred thousand dollars were dumped into town. It is to Elgin's credit to say that there were not many cases of real extortion, but there was a little raising of prices all along the line. The people of Elgin were tolerant, but the crowd was absolutely the best behaved ever seen at a like gathering. The police had little trouble and there was not a case of disorder that amounted to anything. Elgin a year ago laughed at the prospect of a

crowd and was eaten out; this year immense preparations were made to care for a record-breaking attendance, and still they proved not wholly adequate.

The Chicago & Northwestern road and the Elgin-Aurora electric lines ran special trains and carried thousands from Chicago and the thickly settled neighboring places, such cities as Rockford, Waukegan, Kenosha, Joliet and even Mississippi river places being heavy contributors to the attendance. It is conservatively estimated that there were from 100,000 to 125,000 people around the course on Saturday, while it would be well within the limit to say that from 40,000 to 50,000 people were on hand for the first day's program, the "Three-in-One" contest.



GUARDS ON THE WAY INTO ACTION



TROOPS READY TO GO TO THEIR STATIONS

Tabular Story of the Race for the Elgin Nation

Pos.	Driver and Car.	1 8 miles, 2,499 feet	2 16 miles, 4,998 feet	3 25 miles, 2,217 feet	4 33 miles, 4,716 feet	5 42 miles, 1,935 feet	6 50 miles, 4,434 feet	7 59 miles, 1,653 feet	8 67 miles, 4,152 feet	9 76 miles, 1,371 feet	10 84 miles, 3,870 feet	11 93 miles, 1,089 feet	12 101 miles, 3,588 feet	13 110 miles, 807 feet	14 118 miles, 3,305 feet
1—	L. Zengle, National.....	Elapsed time.... 7:39	15:07	22:33	30:27	37:53	45:17	52:48	60:20	67:50	75:16	82:46	90:24	97:57	105:29
		Lap time.....	7:24	7:26	7:54	7:26	7:24	7:31	7:32	7:30	7:26	7:30	7:38	7:33	7:32
2—	H. Grant, Alco.....	Elapsed time.... 7:43	15:23	22:58	30:35	38:13	45:52	53:35	61:21	69:06	76:50	84:25	92:00	99:35	107:18
		Lap time.....	7:40	7:35	7:37	7:38	7:39	7:43	7:46	7:45	7:44	7:35	7:35	7:35	7:43
3—	H. Hughes, Mercer.....	Elapsed time.... 7:58	15:44	23:27	31:09	38:53	46:35	54:18	62:00	69:52	77:40	85:29	94:52	102:39	110:28
		Lap time.....	7:46	7:43	7:42	7:44	7:42	7:43	7:42	7:52	7:48	7:49	9:23	7:47	7:49
4—	F. Lee, Alco.....	Elapsed time.... 8:12	18:46	26:44	34:40	42:37	50:53	58:54	68:31	76:27	84:25	93:13	109:34	119:06	127:00
		Lap time.....	10:34	7:58	7:56	7:57	8:16	8:01	9:38	7:56	7:58	8:48	16:21	9:32	9:54
	D. Buck, Pope-Hartford.....	Elapsed time.... 8:58	15:53	23:08	30:20	37:29	44:22	51:08	57:19	63:32	69:26	75:15	81:00	86:48	92:33
		Lap time.....	16:45	12:15	18:12	18:09	8:53	7:46	8:11	11:03	8:04	7:49	7:55	13:26	8:57
	H. Hartman, Alco.....	Elapsed time.... 7:56	15:41	23:29	31:16	39:06	46:53	54:40	62:26	70:15	78:01	85:48	93:35	101:23	109:12
		Lap time.....	7:45	7:48	7:47	7:50	7:47	7:47	7:46	7:49	7:46	7:47	7:47	7:48	7:49
	R. Mulford, Lozier.....	Elapsed time.... 7:27	14:41	22:00	29:17	36:35	43:52	51:05	58:22	Out with burned out connecting rod					
		Lap time.....	7:14	7:19	7:17	7:18	7:17	7:13	7:17						
	S. Wishart, Simplex.....	Elapsed time.... 7:39	15:11	22:42	30:15	Out with broken connecting rod.									
		Lap time.....	7:32	7:31	7:33										
	R. De Palma, Simplex.....	Elapsed time.... 7:41	15:21	Out with broken fly wheel.											
		Lap time.....	7:40												
	J. Aitken, National.....	Elapsed time.... 11:38	20:23	Out with cracked cylinder.											
		Lap time.....	8:45												

All of Elgin's business houses had closed for the two days and all of Chicago's automobile colony was there the second day. Governor Deneen and a number of prominent state officials, including several military officers, attended the races Friday.

In consequence of this the crowd seemed to have grown to twice the size of the day previous, for many hove into town in the early morning hours and had their positions almost before the ticket-sellers and takers were on the job. After the race it required a full hour for all the people and cars to leave the course, and during that time there were four rows of cars wedging themselves into as little space as possible, but so far as was reported there was not the slightest accident in the final get-away after each day's race. Every mortal man, woman and child had paid an admission and every car had to have at least a \$2 ticket to be permitted to park around the course, and some of them paid as high as \$5. This money goes to the Elgin Road Race Association, and the farmer owners of the land around the course share in it, too.

The race itself was good in some ways, but it was the consensus of opinion that on either day it became decidedly uninteresting because of the lack of real contest. This criticism is not well taken, for there was decided contest; the trouble was that the field was separated and without a close study of the charts showing the positions of the cars by laps it appeared decidedly uninteresting. But the people stayed till the finish, because there was nothing else to do and because those with cars could not get out until the race should be called off.

It was most unfortunate that death should have stepped in and taken Ralph Ireland away the Monday before; it was quite as unfortunate that Buck and his lit-

Official Summary in Tabular Form of the

THE STRUGGLE FOR THE ILLINOIS TROPHY—CONTESTED BY

Driver and Car.	1 8 miles, 2,499 feet	2 16 miles, 4,998 feet	3 25 miles, 2,217 feet	4 33 miles, 4,716 feet	5 42 miles, 1,935 feet	6 50 miles, 4,434 feet	7 59 miles, 1,653 feet	8 67 miles, 4,152 feet	9 76 miles, 1,371 feet
D. Herr, National.....	Elapsed time.... 7:37	14:52	22:41	30:40	38:25	46:08	53:47	61:23	69:00
	Lap time.....	7:15	7:39	7:59	7:45	7:43	7:39	7:36	7:44
C. Merz, National.....	Elapsed time.... 7:46	15:28	23:03	30:39	38:18	46:03	53:37	61:16	69:22
	Lap time.....	7:42	7:35	7:36	7:39	7:43	7:34	7:39	8:00
B. Jeffkins, Velie.....	Elapsed time.... 9:14	18:28	31:18	40:27	49:32	58:33	67:39	76:53	85:55
	Lap time.....	9:14	9:38	9:09	9:05	9:01	9:06	9:14	9:00
J. Stickney, Velie.....	Elapsed time.... 8:26	16:27	30:08	43:56	57:12	70:12	83:33	96:49	109:49
	Lap time.....	8:01	13:41	31:48	8:16	8:21	10:08	8:08	8:11

THE RACE FOR THE KANE COUNTY TROPHY—CONTESTED BY

Driver and Car.	1 8 miles, 2,499 feet	2 16 miles, 4,998 feet	3 25 miles, 2,217 feet	4 33 miles, 4,716 feet	5 42 miles, 1,935 feet	6 50 miles, 4,434 feet	7 59 miles, 1,653 feet	8 67 miles, 4,152 feet	9 76 miles, 1,371 feet
H. Hughes, Mercer.....	Elapsed time.... 7:40	15:55	23:42	31:28	39:14	47:03	54:55	62:49	70:55
	Lap time.....	8:15	7:37	7:46	7:46	8:29	7:52	7:54	8:00
W. Barnes, Mercer.....	Elapsed time.... 8:12	16:18	24:24	32:33	40:38	48:41	56:36	64:41	72:55
	Lap time.....	8:06	8:06	8:31	8:05	8:03	7:55	8:05	8:00
W. Pearce, Colby.....	Elapsed time.... 8:35	16:59	25:24	33:48	42:06	50:19	58:36	66:67	75:11
	Lap time.....	8:24	9:05	8:24	8:18	8:17	8:17	8:21	8:01
J. Jenkins, Cole.....	Elapsed time.... 8:04	17:06	25:27	33:52	42:16	50:37	59:04	67:32	76:00
	Lap time.....	9:02	8:25	8:25	8:24	8:19	8:27	8:26	8:03
A. Maisenville, Corbin.....	Elapsed time.... 8:05	16:24	24:34	32:42	40:49	49:05	57:12	65:30	73:41
	Lap time.....	8:19	8:10	8:28	8:07	8:56	8:07	8:18	8:03
G. Morris, Cole.....	Elapsed time.... 8:47	21:58	30:44	39:12	47:40	56:08	64:35	73:09	81:33
	Lap time.....	13:11	8:36	8:28	8:28	10:28	8:57	8:54	8:03
G. Monckmeier, Staver-Chi.....	Elapsed time.... 8:29	16:40	24:47	32:50	40:50	49:32	57:51	66:17	74:41
	Lap time.....	8:11	8:07	8:03	8:45	8:42	8:19	8:26	8:03
M. Armstrong, Colby.....	Elapsed time.... 11:53	22:42	33:43	46:24	60:29	71:01	84:11	106:56	120:43
	Lap time.....	10:49	11:01	12:41	14:05	11:12	13:10	22:45	13:00
J. Rainy, Cino.....	Elapsed time.... 8:07	17:36	31:04	40:26	49:21	58:08	Out with broken connecting rod		
	Lap time.....	8:29	14:08	9:22	9:35	8:47			
F. Robillard, Staver-Chi.....	Elapsed time.... 14:02	22:58	31:52	40:50	49:39	59:34	Out with broken connecting rod		
	Lap time.....	8:56	8:54	9:38	9:29	8:55			
H. Ogren, Colby.....	Elapsed time.... 15:41	24:56	34:03	43:14	52:37	Out with seized piston			
	Lap time.....	9:15	8:07	9:11	9:23				

THE FIGHT FOR THE AURORA

Driver and Car.	1 8 miles, 2,499 feet	2 16 miles, 4,998 feet	3 25 miles, 2,217 feet	4 33 miles, 4,716 feet	5 42 miles, 1,935 feet	6 50 miles, 4,434 feet	7 59 miles, 1,653 feet	8 67 miles, 4,152 feet	9 76 miles, 1,371 feet
M. Roberts, Abbott-Detroit.....	Elapsed time.... 9:13	18:23	28:32	37:32	46:42	55:54	65:05	74:37	84:00
	Lap time.....	9:10	10:09	9:00	9:10	9:12	9:11	9:32	9:00
F. Kulick, Ford.....	Elapsed time.... 10:02	19:53	29:38	39:31	49:27	59:20	69:10	79:11	88:55
	Lap time.....	9:51	9:35	9:53	9:56	9:53	9:50	10:01	9:00
A. Robbins, Abbott-Detroit.....	Elapsed time.... 9:39	18:58	28:15	47:26	60:04	69:23	78:44	88:11	97:33
	Lap time.....	9:14	9:17	19:11	12:38	9:21	9:19	9:27	9:00

Trophy—Contestants' Times by Laps, and Totals

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36																
	135 miles, 3,024 feet	144 miles, 243 feet	152 miles, 2,742 feet	160 miles, 3,241 feet	169 miles, 2,460 feet	177 miles, 4,959 feet	186 miles, 2,178 feet	194 miles, 4,677 feet	203 miles, 1,896 feet	211 miles, 4,395 feet	220 miles, 1,614 feet	228 miles, 4,113 feet	237 miles, 1,332 feet	245 miles, 3,831 feet	254 miles, 1,050 feet	262 miles, 3,549 feet	271 miles, 768 feet	279 miles, 3,257 feet	288 miles, 486 feet	296 miles, 2,985 feet	305 miles, 204 feet																
07	120:42	128:21	135:57	143:31	151:02	159:30	167:13	174:44	182:17	189:55	197:31	205:09	212:50	220:29	228:12	235:41	244:16	252:08	259:54	267:44	275:39.08																
08	7:35	7:39	7:36	7:34	7:31	8:28	7:43	7:31	7:33	7:38	7:36	7:38	7:41	7:39	7:43	7:37	8:27	7:52	7:46	7:50	7:55.08																
02	122:45	130:31	138:09	145:38	153:14	160:51	170:44	178:25	186:15	193:55	201:39	209:24	217:10	224:52	232:37	240:25	250:42	258:33	266:24	274:14	281:58.72																
44	7:43	7:46	7:38	7:29	7:36	7:37	9:53	7:41	7:50	7:40	7:44	7:45	7:46	7:42	7:45	7:48	10:17	7:51	7:51	7:50	7:44.72																
16	126:25	134:09	141:54	149:40	157:27	165:16	173:03	182:01	189:46	197:34	205:14	212:55	220:32	228:09	235:43	243:30	251:07	258:49	266:41	274:26	282:09.97																
48	8:09	7:44	7:45	7:46	7:47	7:49	7:47	8:58	7:45	7:48	7:40	7:41	7:37	7:37	7:34	7:47	7:37	7:42	7:52	7:45	7:43.97																
47	142:34	150:21	158:09	170:14	178:14	186:28	194:28	205:14	213:09	225:38	238:34	241:19	249:22	257:18	265:24	273:41	285:45.51	Flagged.																			
47	7:47	7:47	7:48	12:05	8:00	8:14	8:00	10:40	7:55	12:29	7:56	7:45	8:03	7:56	8:06	8:17	12:04.51																				
31	172:43	183:31	191:19	199:07	206:58	214:49	222:42	230:33	238:26	Turned turtle; driver and mechanic killed.																											
58	8:12	10:48	7:48	7:48	7:51	7:51	7:53	7:51	7:53																												
11	128:42	136:34	144:24	153:51	165:44	Out with leaking gasoline tank.																															
59	11:31	7:52	7:50	9:27	11:53																																
ng.																																					

Three-in-One Contest Over the Elgin Course

RACES OF 301-450 CUBIC INCHES PISTON DISPLACEMENT

10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
84 miles, 1,089 feet	93 miles, 1,089 feet	101 miles, 3,588 feet	110 miles, 807 feet	118 miles, 3,305 feet	127 miles, 525 feet	135 miles, 3,024 feet	144 miles, 243 feet	152 miles, 2,742 feet	160 miles, 5,241 feet	169 miles, 2,460 feet	177 miles, 4,959 feet	186 miles, 2,178 feet	194 miles, 4,677 feet	203 miles, 1,896 feet				
85:11	85:11	92:58	100:43	108:31	116:16	124:01	131:42	139:22	147:03	154:45	162:26	170:05	177:55	185:55				
8:02	8:02	7:47	7:45	7:48	7:45	7:45	7:41	7:40	7:41	7:42	7:41	7:39	7:50	8:00				
86:04	86:04	94:01	101:37	109:08	116:36	124:16	132:05	139:56	147:39	155:10	162:53	170:40	178:22	186:04				
8:13	8:13	7:57	7:36	7:31	7:28	7:40	7:49	7:51	7:43	7:41	7:43	7:47	7:42	7:42				
106:51	106:51	116:02	124:54	133:51	142:39	151:30	160:27	169:20	178:10	186:59	Flagged.							
11:44	11:44	11:31	8:52	8:57	8:48	8:51	8:57	8:53	8:50	8:49								
119:32	119:32	128:08	146:25	154:28	162:46	171:51	Flagged.											
8:23	8:23	8:36	16:19	8:03	8:18	9:05												

TESTED BY CARS OF 301-450 INCHES DISPLACEMENT

	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	86:52	95:45	102:46	110:46	118:36	126:17	134:00	141:46	149:37	157:21	165:04	172:48	180:34	188:20	196:06	203:52	211:38
58	8:03	7:53	8:01	8:00	7:50	7:41	7:43	7:46	7:51	7:44	7:51	7:44	7:51	7:44	7:51	7:44	7:51
51	88:55	96:46	104:44	112:42	120:15	128:30	136:23	144:15	152:04	159:55	167:46	175:37	183:28	191:19	199:10	207:01	214:52
01	8:04	7:51	7:58	8:38	7:51	7:57	7:53	7:52	7:49	7:51	7:58	7:49	7:51	7:58	7:49	7:51	7:58
29	91:42	99:56	108:12	116:37	124:58	133:15	141:46	149:59	158:05	166:11	174:28	182:45	190:52	199:09	207:26	215:43	223:59
18	8:13	8:14	8:16	8:25	8:21	8:17	8:31	8:12	8:07	8:06	8:13	8:07	8:12	8:07	8:12	8:07	8:12
33	93:00	101:24	109:47	118:09	126:28	134:47	143:05	151:27	159:50	168:19	176:48	185:17	193:46	202:15	210:44	219:13	227:42
33	8:27	8:24	8:23	8:22	8:19	8:19	8:18	8:22	8:23	8:29	8:30	8:24	8:29	8:30	8:24	8:29	8:30
53	102:48	110:19	116:39	126:48	135:22	143:32	151:42	160:04	168:13	177:12	185:21	193:30	201:39	209:48	217:57	226:06	234:15
38	16:15	8:11	8:20	8:09	8:32	8:10	8:03	9:18	8:14	8:54	9:23	8:14	8:54	9:23	8:14	8:54	9:23
40	100:18	109:05	117:42	126:13	134:44	143:20	151:50	160:24	168:56	177:37	186:08	194:79	203:50	212:21	220:92	229:03	237:14
42	8:38	8:47	8:37	8:31	8:31	8:36	8:30	8:34	8:32	8:41	8:37	8:32	8:41	8:37	8:32	8:41	8:37
03	101:22	109:37	118:08	126:29	134:46	145:09	153:33	161:51	170:05	178:16	186:27	194:38	202:49	210:59	219:10	227:21	235:32
16	8:19	8:15	8:31	8:21	8:17	10:23	8:24	8:18	8:14	8:11	8:18	8:14	8:11	8:18	8:14	8:11	8:18
46	148:18	160:33	171:53	183:09	Flagged.												
06	14:32	12:15	11:20	11:16													

—FOR CARS IN 261-300 INCH CLASS

	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11	102:40	112:28	122:05	131:42	141:23	151:11	160:58	170:45	180:32	190:19	200:06	209:53	219:40	229:27	239:14	249:01	258:88
10	9:29	9:48	9:37	9:37	9:41	9:48	9:41	9:48	9:41	9:48	9:41	9:48	9:41	9:48	9:41	9:48	9:41
57	109:00	118:59	129:04	139:08	149:09	159:11	169:12	179:13	189:14	199:15	209:16	219:17	229:18	239:19	249:20	259:21	269:22
10	10:03	9:59	10:05	10:04	10:01	10:03	10:04	10:01	10:03	10:04	10:01	10:03	10:04	10:01	10:03	10:04	10:01
51	116:14	125:34	134:51	143:39	154:01	166:56	178:41	189:26	200:11	210:56	221:41	232:26	243:11	253:56	264:41	275:26	286:11
15	9:23	9:20	9:17	8:48	9:22	12:55	9:23	9:20	9:17	8:48	9:22	12:55	9:23	9:20	9:17	8:48	9:22

the mechanic, Jacobs, should have come to such an untimely end just as the former was about to abandon the race because of having used up twenty tires and having no more with which to complete his thirty-six laps. They were imprisoned by the heavy body built up like an enclosed car, making it impossible for the occupants to get out in case of an upset. No sooner had Buck and Jacobs met their fate than the opinion was expressed among the officials that there should be some rule to prevent cars from competing in races when equipped with bodies of this type.

Some consternation is felt in Elgin because of the possibility of damage suits being brought by those who were in the grandstand. The Elgin Automobile Road Race Association, the contractor who furnished seats and stands, the farmers who shared in the receipts from admissions and, just possibly, the Chicago Motor Club, may be dragged into the trouble if there are suits started. That the Elgin association made money this year to offset last year's deficit goes without saying, for the prices of seats and parking spaces had been materially increased and the attendance was perhaps double that of last year.

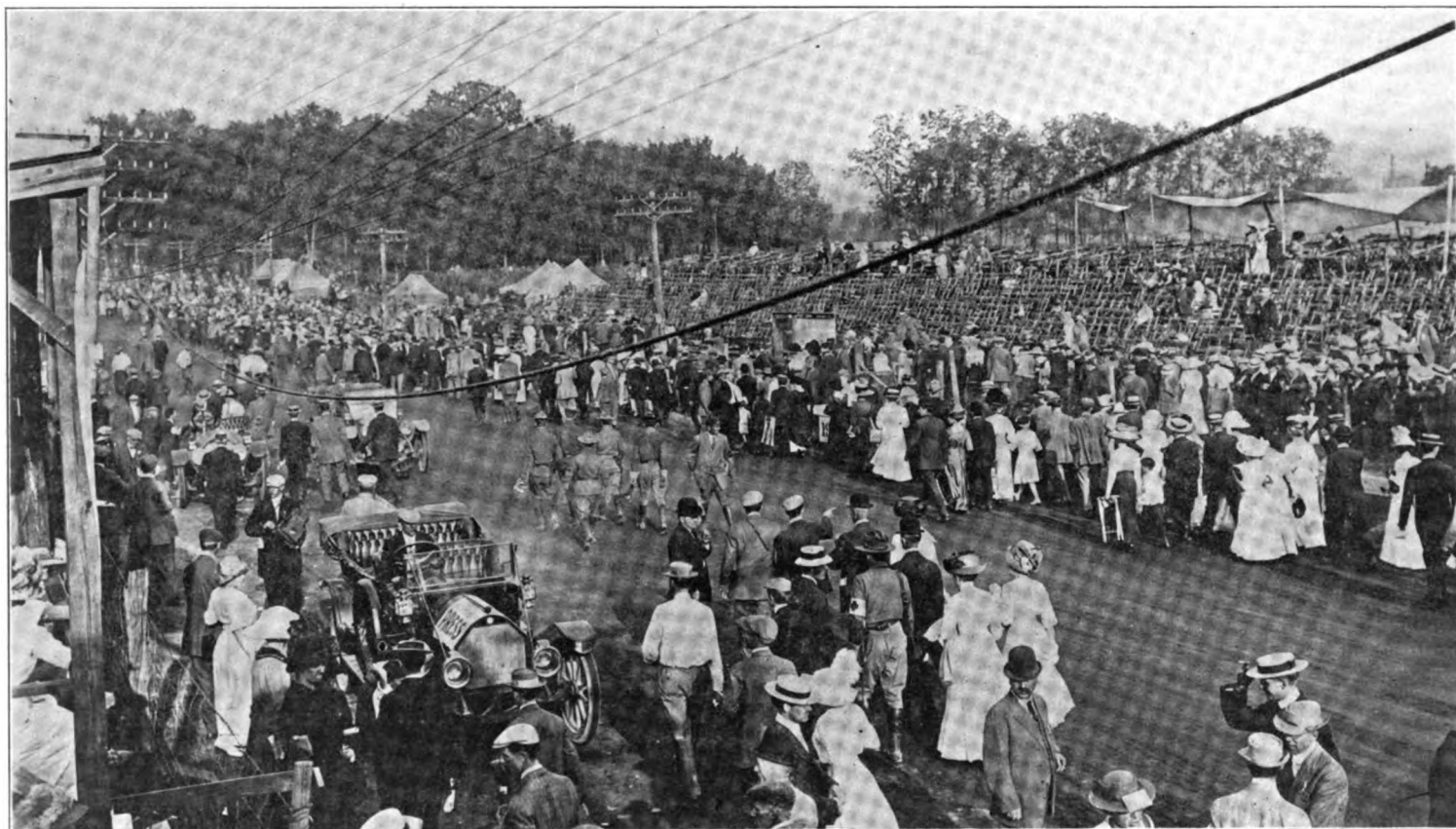
All told the four races resulted in a signal victory for Michelin tires; the first three cars in all of the longer races were shod with Michelins, as was the Abbott-Detroit, with which Roberts won the Aurora Cup. Kulick, who drove a Ford and was second to Roberts, used Firestones. Splitdorf ignition apparatus, with the exception of the plugs, which were of Bosch manufacture, was the equipment on all three of the National cars with which Zengle won the Elgin trophy and Herr and Merz ran one-two for the Illinois trophy, respectively. Of the other winners and place winners all used Bosch ignition apparatus, with the exception of Pearce, whose Colby was

sparked by a Remy magneto, though he, too, used Bosch plugs, and Kulick, whose Ford was equipped with its own ignition system.

Happily the falling of the grandstand proved less serious a catastrophe than was supposed even by those who remained on the spot and saw that in place of the fifty or more whom the newspapers reported to have been seriously hurt, but seven actually required hospital care. Later reports indicate that of these, but four remained under treatment, three of them being able to

ing. During the 50 minutes that the race was suspended and while the tangled spectators were being rescued from the sunken stand and assisted to positions of greater safety when they could view the remainder of the race, it was reported that there was great activity in the National camp. Zengle's car, later to be piloted home the winner, was said to have suffered a mishap at the outset of the race and to have been in somewhat damaged condition when it was flagged at the end of the second lap. The delay before the race was restarted

a total of twenty-six cars nominated up to Thursday, August 31st. Furthermore, he will invite the Governor of each of the ten States through which the tourists will pass, or near which they will pass, to be his guest from boundary line to boundary line—and it is said that at least some of them will accept. As far as is known this is the first time that a purely sporting event has boasted of gubernatorial interest, and it is hoped that the presence of Governor Smith, at least, will increase the impetus it is expected will



HOMEWARD BOUND—NEARLY 100,000 PEOPLE FORSOOK ELGIN WITHIN FOUR HOURS

go home early in the week. Considering that nearly a thousand people were tossed about when the shoring gave way and permitted the stand to settle to the ground it is nothing short of remarkable that the most serious injury should have been a compound fracture of the leg.

With the relieving of all anxiety as to the outcome of the accident certain rumors of damage suits against the Elgin Automobile Road Racing Association, the contractors and even the Chicago Automobile Club likewise vanished into thin air. Likewise stories to the effect that the Elgin association was trying to avoid some of its obligations, which had been vigorously circulated, also were found to be untrue. The accident probably, however, will not be without useful effect in teaching the management of future gatherings.

Incidentally the falling of the stand gave rise to a supposed situation that is probably unparalleled in the history of road rac-

ing. was said to have been sufficient to enable the trouble, whatever it was, to be set right.

Disappointed partisans of the Alco team made capital of the report after the race was over, claiming that as a result of the delay an unfair advantage had been gained against the field, and that but for that circumstance Grant in the Alco would have finished first, instead of second. The American Locomotive Co., entrant of the three Alco cars, was urged to protest the race on this ground. As a matter of fact, however, no protest has been filed, nor is there direct evidence that the National required, or received, attention of an important nature during the period of idleness.

Ten Governors for the Glidden Tour.

The entry list for the resurrected Glidden tour continues to fill, one of the latest entries to be received being that of Governor Hoke Smith of Georgia, making

be given the good roads movement which is the ostensible purpose of the tour. The Governor will ride in a 36-horsepower Maxwell, which has been tendered to him by the United States Motor Co.

Stock Car Registrations Gaining.

While it is necessary, according to the rules of the American Automobile Association, that stock cars be properly registered at least 30 days prior to the date of stock events in which they are to be entered, it is unlikely that the entry list for the 1911 Glidden tour will suffer on this account, as with but few exceptions all of the prominent manufacturers have registered their 1911 cars, and already eight registrations of 1912 cars have been made. September 14 is the limit date when registration of cars for entry in the Glidden will be entertained, as the tour is scheduled to start from New York on October 14.

VEERAC'S FEATURES DISCLOSED

**Acrostic Name for New Light Truck from
Anoka—Its Engine Controlled by
Novel Method.**

Though its name, which means "Valveless, Explosion Every Revolution, Air-Cooled," tells a good part of the story of the Veerac light delivery car, it does not tell it all, and some of the features which are left untold are at once distinctly novel and meritorious. The vehicle is manufactured by the Veerac Motor Co. at its plant in Anoka, which is a suburb of Minneapolis, Minn.



VALVELESS EXPLOSION EVERY REVOLUTION AIR COOLED DELIVERY CAR

A single chassis nominally rated at 1,000 pounds capacity is produced and on this may be mounted any of a number of styles of body varying to suit the commercial requirements of the purchaser. The price of the complete vehicle with any of the bodies is close to \$850, that figure applying to a full-paneled delivery wagon. Considering the fact that the wheel base of the car is only 82 inches, the length of the available loading platform, which is 88 inches, is rather more than might be expected on a car of this size, this advantage being explained by the location of the power plant under the driver's seat and below the chassis.

As is implied by the phrase from which the name of the vehicle was evolved, the motor is of the two-cycle, air-cooled type. It consists of two horizontally opposed cylinders rated at 20 horsepower and is cooled by means of a fan, the blades of which are mounted on the exterior of the flywheel, which is located in front. By means of deflectors the air is forced to pass directly around the cylinders and this, in

conjunction with especially thin radiating flanges of large surface, effectively precludes the possibility of overheating.

Ensuring economy of operation while standing during short delivery stops the motor is so arranged that one cylinder may be shut off, the saving in fuel thus realized being augmented by the slow running of the motor on the remaining working cylinder. To attain this end suitable levers connected to shut-offs between the crank case and the combustion spaces of each of the cylinders are located on top of the steering wheel. Either or both of the shut-offs thus may be opened or closed at the will of the driver, and it is claimed that for slow running in traffic on high gear one cylinder may be "killed," resulting in a

considerable saving of fuel when running as well as when standing. A foot accelerator connected to the carburetter also is supplied, and this may be used alone or in conjunction with the cylinder cut-offs to provide quicker action and greater flexibility. The simplicity of the two-cycle motor is further increased by the absence of any outside lubricator, the lubricating oil being placed directly in the gasoline. The cylinder walls are lubricated by a continual oily vapor and the oil which drains down into the crank case is sufficient to ensure the proper lubrication of the main and auxiliary bearings.

Two speeds forward and reverse are provided in a planetary change gear set and this and the high-speed clutch form a unit which is supported at three points. Final drive is effected by means of roller chains running over sprockets mounted directly on the spokes of the rear wheels. The wheels are of the artillery type, 36 inches in diameter, and are mounted on roller bearings. Two-inch solid, flat tread rubber tires constitute the standard equipment.

The driver's seat is located at the left side and control is effected by means of a pedal and lever arrangement.

Jackson Announces Three New Models.

Supplementing the comprehensive line of Jackson cars, which are built by the Jackson Automobile Co., Jackson, Mich., three new models have been added. They are styled models 52, 42 and 32, and are rated as 50, 40 and 30 horsepower, respectively. Model 52, which sells for \$1,800, is a roomy, five-passenger touring car of 124-inch wheel base and is mounted on 36-inch wheels. Demountable rims, gas tank, horn and tools are included in the standard equipment without extra cost. Built on practically the same roomy lines, except that the wheel base is six inches shorter, model 42 also is a five-passenger touring car, the price of which is \$1,500. The 34-inch wheels are shod with four-inch tires and the purchase price includes such items of equipment as top, windshield, gas tank, horn and tools. The smallest model lists at \$1,100 and is similar to the others, with the exception that the wheel base is 110 inches and the wheels are 32 inches in diameter; the equipment is practically the same as for model 42. The motors in all of the three new models are of the four-cylinder variety.

White Announces Taxicab Offering.

After a very thorough canvass of the taxicab situation the White Co., of Cleveland, O., is offering a taxicab model embodying features of construction and equipment that particularly adapt it to the service. Instead of the regular pleasure car chassis, a special chassis has been developed. The motor is of the long stroke type, $3\frac{3}{4}$ by $5\frac{1}{2}$ inch bore and stroke, and is identical with that used in the White 1,500-pound motor wagon and in the one and a half and three-ton trucks. The tires are 34 by $4\frac{1}{2}$ on all wheels, which are fitted with quick detachable demountable rims. The panels of the body are metal and are removable separately for replacement in case of damage. Leather is used for the interior finish.

Riverhead Race Plan Abandoned.

After having suffered a postponement on account of conflicting with the date of the Suffolk County Fair, the proposed road race over the Riverhead (L. I.) course scheduled for September 30th has been called off. Although sanction had been obtained from the A. A. A., it is claimed that the promoters were not able to obtain militia to guard the course, which requirement formed one of the clauses in the sanction, and that they therefore decided to abandon the idea. People conversant with the facts, however, are unkind enough to lay the abandonment to the apparent reluctance of the manufacturers to fill out the entry blanks sent to them.

AVOIDING TRUCK TIRE TROUBLES

Overloading and Overspeeding Effects Augmented When Heavy Loads Rest on Wheels—Views of an Expert.

Truck owners and operators frequently are warned about the dangers of overloading and overspeeding their vehicles, but these two forms of abuse are not the only ones to which the tire equipment may be subjected. Another and by no means unimportant one results from allowing trucks to stand fully loaded for hours at a time, or even over night. Because of their apparent solidity and strength some truck operators believe solid tires capable of standing any kind of load placed upon them, a fallacy which should be dispelled if exorbitant tire bills are to be avoided.

In speaking of the abuse of solid tires by otherwise careful drivers and owners, F. F. Phillips, manager of the solid tire department of the United States Tire Co., declares that many truck owners and operators seem to entertain the idea that solid tires need no attention as long as they remain on the wheels and run. "The man who holds these views," he declares, "will find his tire bills far in excess of what they should be. Solid tires constitute one of the most important details of motor truck equipment and, besides, they cost money. For these reasons if a truck owner expects to realize a satisfactory return on his investment he should see to it that his tires are looked after in a business-like manner."

Overloading and speeding are not so much the owner's fault as that of the driver, particularly the speeding, as that is generally done when the truck is out of sight of the "boss." Combining overloading with speeding is the surest way of ruining the best truck made in the shortest possible time. Another effective way of destroying tires is the sudden application of the brakes. This action is extremely hard on the tires, as it is apt to tear the rubber from its base. When the caoutchouc material is wrenched from the base, or even merely split for a short distance, moisture, oil, gasoline are admitted to the crack and result in speedy disintegration of the whole tire. Once a crack is made it is impossible to prevent further loosening.

"In this connection," Phillips remarks, "it may be noted that the most difficult problem confronting solid tire makers has been the devising of means to hold the tire together. It has been comparatively easy, through various processes of compounding, to produce a mileage-yielding tire, but it has not been so easy to maintain the unity of the tire until this service could be gotten out of it. Solid tires show a tendency to peel off the base and violent operation of the brake is a certain aid in this process of disintegration.

"Another practice frequently resorted to, for reasons of apparent expediency, is to allow a truck to stand under full load over night, or perhaps longer. This imposes an unnecessary strain upon the tires and from the standpoint of tire economy it is far better to remove the load from the truck until such time as delivery is to be made. Oil is a natural enemy of rubber and tires should never be allowed to rest on a greasy garage floor.

"Rounding corners at a high rate of speed is a mighty expensive way of demonstrating skilful driving. A driver shortens the life of his tires every time he does it. When a heavy truck is swung rapidly around a corner the strain on the tires is tremendous. They must not only sustain the weight of the load under such conditions, but must resist the swaying motion of the truck as well.

"Street car tracks should be avoided whenever possible, and at crossing points, where there are frogs, additional care should be exercised in dodging them, as the frogs frequently are worn until their sharp edges cut a tire as effectively as though a knife were used.

"It is important that every business man using motor trucks in his delivery system should keep a careful, systematic record of the work done by them and the expense of their operation. In this way, and in this way only, is he in position to know what each detail of his truck equipment is costing him. And if he finds that he is not getting the mileage out of his tires his business judgment tells him he should get he may discover, upon investigation, that the men operating his trucks are more or less at fault."

Raincoats That Are "All-Proof."

On the ground that the ordinary rubberized raincoat suffers by decomposition of the rubber when oil or gasoline comes in contact with it and that the wrinkles cannot be removed by pressing or any other quick method, the Brown & Williams Co., 253 Broadway, New York, manufacturer of raincoats, has brought out a new fabric, known as Ex-Tex All-Proof, which is claimed to be not only waterproof, but gasoline, grease and heat proof as well. The Ex-Tex raincoat can be cleaned with benzine and pressed like a suit of clothes, and is represented as having the appearance of high grade, double texture rubberized raincoats of considerably higher price.

Will Use a Lion for Wireless Work.

During the recent ten days' maneuver of the Michigan National Guard at Port Huron a Lion "40" was used in the wireless telegraph service and performed so satisfactorily that Company A of the Signal Corps decided to equip its wireless section with this car. It is expected that all signal corps in the National Guard sooner or later will equip their wireless telegraph sections with motor cars.

VAGARIES OF FERRY CHARGES

New York Ferries Most Inconsistent in Ferry Rates for Trucks—Some Examples of Gatemen's "Discretion."

Among other conditions affecting mechanical haulage in and about New York City, the Motor Truck Club, a metropolitan organization, which has set itself the task of righting some of the wrongs of motor truckmen, has brought to light certain astonishing inconsistencies in the ferry charges applied to trucks. Instead of basing the tolls on the weight of the truck and its load, a special method of charge proportioned on the length of the vehicle has been introduced. Even this rather incongruous method of classification might be permitted to pass without comment were it not that the gatemen are permitted to use their own discretion in determining to what classification any given vehicle belongs.

Trucks usually are charged ten cents less when light than when fully or partially loaded; otherwise the method of classification by length obtains uniformly. The typical system provides five or six classes, the graduation being two feet per grade and the increase charge for every additional two feet of length being 10 cents. But definite rates do not apply when it comes to paying the ferry gatemen's toll. One prominent truckman stated that on the Staten Island ferry, which is owned and operated by the New York City government, and which is regarded as one of the most inconsistent in the harbor, he has paid from 40 to 65 cents for the same truck and the same amount loaded as light, while with the same truck he was once charged \$1.10 light and 65 cents loaded, according to the whim or vagarious estimate of the attendant.

Another instance is cited with the Forty-second street ferry, where a certain truck should have been charged 25 cents, but the attendants tried to charge 40 cents. Not until the chauffeur left his truck standing in the gangway and proceeded to complain to a superior and compel their measurement of the vehicle did the attendant weaken and accept the 25 cents charge.

The work of the special committee of the Truck club which has the matter in hand has not as yet progressed much beyond the stage of gathering information, but a number of remedial plans are in mind. Pending possible conferences with the various authorities in charge of the ferries and even an appeal to the willing ear of the mayor, it has been suggested that it might be a helpful measure for truck owners to scale their vehicles and have their exact lengths painted on the sides in a position where the figures would come under the eye of the gatemen.

\$250,000 IN A SERVICE BUILDING

Reasons That Impelled Ford to Provide It for the East—Plaintiff Reveals Its Many Purposes.

"With all the talk about 'service buildings' and what has become known as 'service,' in connection with taking care of

place, but they couldn't. The best thing we had offered to us was way over on Tenth or Eleventh avenue, but it was not big enough.

"Then the Pennsylvania Railroad's property over in Long Island City was brought up. It seemed like talking about East Seaboard, Me., or something like that. But we thought better of the proposal after we found that it took hardly any longer to get

avenue on the side and the Pennsylvania railroad tracks at the back. It gave us the room and the location we wanted, so we bought 350 feet frontage, or four times what our building requires, as it is 80 feet wide.

"This extra land is to be kept covered with nice green grass for some time, until it is needed. It will not be needed for quite a few years, because, although the service building has three stories and basement, the foundations, wall construction and pillars are such that it can take seven more stories as they may be required, giving a chance to expand upward considerably before we go sidewise. By spending between \$200,000 and \$250,000, we have provided a real service building that will benefit not only Ford owners in the Metropolitan district, but every dealer and owner in the East.

"For owners in New York City and vicinity, it gives more room and better facilities than our Broadway building, for taking care of adjustments, repairs and replacements, so that they may get their cars back within a few hours under ordinary conditions, and in a minimum of time where rebuilding or coach work is necessary. For dealers and owners out of town, it makes possible a system whereby every replacement part order received before 5 P. M. will be shipped the same day, whether it be for a whole chassis, a body or a switch plug. Orders that come in at night, by telegraph, telephone or special delivery, must be shipped before 10 o'clock the next

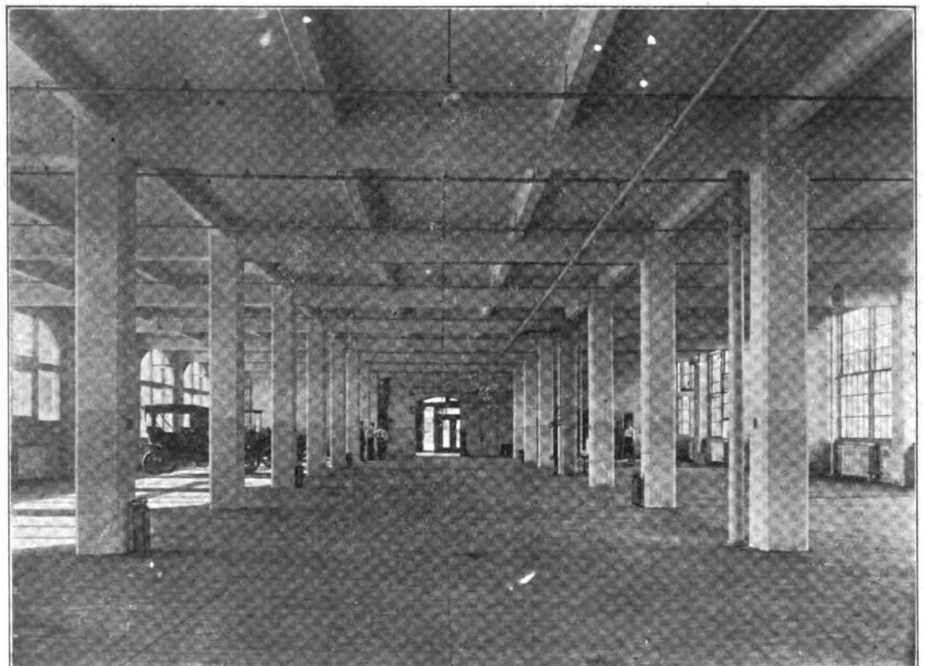


FORD SERVICE BUILDING IN LONG ISLAND CITY

customers' cars, only the big fellows are so far really carrying out the idea in a large, practical way," said Gaston Plaintiff, "and I think that about the biggest and best thing that has been done as yet is the new Ford service building in Long Island City, for Ford owners and agents in the East. It's worth seeing."

Plaintiff did not speak as a disinterested observer. He is the manager of the New York branch of the Ford Motor Co., of Detroit, Mich. But he did speak with sincere pride. As the Ford landaulet with himself and his guest from the Motor World glided over the great spans of the Queensboro bridge, on its 15 minute trip from the Ford branch on Broadway to the service building, Plaintiff gave expression to some of the reasons actuating the putting up of the impressive Long Island City structure.

"Broadway rent for a stockroom and repair shop isn't good business," he declared. "In fact, it is hard to find a location on the island of Manhattan where enough space can be obtained without paying outrageous prices for land or rent, and where it is easy for customers to bring their cars and where at the same time the railroad is close at hand for incoming and outgoing freight and express shipments. We had plenty of brokers trying to find such a



MAIN RECEIVING AND DELIVERY ROOM OF THE GROUND FLOOR

there in a machine than it does to go from Columbus Circle down Broadway to Fourteenth street. It is easy to reach by street car, too. The site was 275 feet deep, with Jackson avenue on the front, Honeywell

morning. Express and freight offices are right at hand, while for our incoming shipments from the Detroit factory, we have a spur track from the railroad, coming right to our own platform at the back of the

building, where we can unload four freight cars at a time.

"So important do I regard the service building in the handling of Ford affairs in the East, that I shall make my office there hereafter, instead of at the Broadway branch. The latter will be kept for retail sales, and will carry enough replacement parts and have sufficient repair facilities for minor emergency needs. The display room and headquarters for the wholesale trade,

sponding degree, is to give the owner that 'service' which best assists satisfactory maintenance."

By this time the landaulet had traversed the bridge, passed the handsome building in Long Island City where Brewster automobile bodies are made, and had swung into the wide side-entrance of the Ford service building itself. The accompanying pictures give a suggestion of the spaciousness of the whole building, each floor of

displaying cars. On three sides the room is windows, and it is finished in quartered oak, with elaborate decorative electroliers.

Back of the showroom comes the main receiving and delivery room, where the cars that are to be called for are kept and where incoming cars that are to have work done on them are received. There is a complete checking system for incoming and outgoing cars, something similar to that maintained in the best garages. Near the entrance is a large washing stand, with an overhung swinging hose so arranged that the water automatically shuts off when the hose is not in use. Out in the yard at some little distance is a Bowser underground storage tank, with measuring pump. The tank holds 500 gallons of gasoline. At the rear of the building is a big elevator for taking cars from one floor to another. It is equipped with automatic devices that prevent the elevator platform from being moved unless all gates are closed, and prevent the opening of a gate other than that where the platform is at rest. Outside the building, at the rear, is the spur track of the railroad, with suitable freight receiving platform.

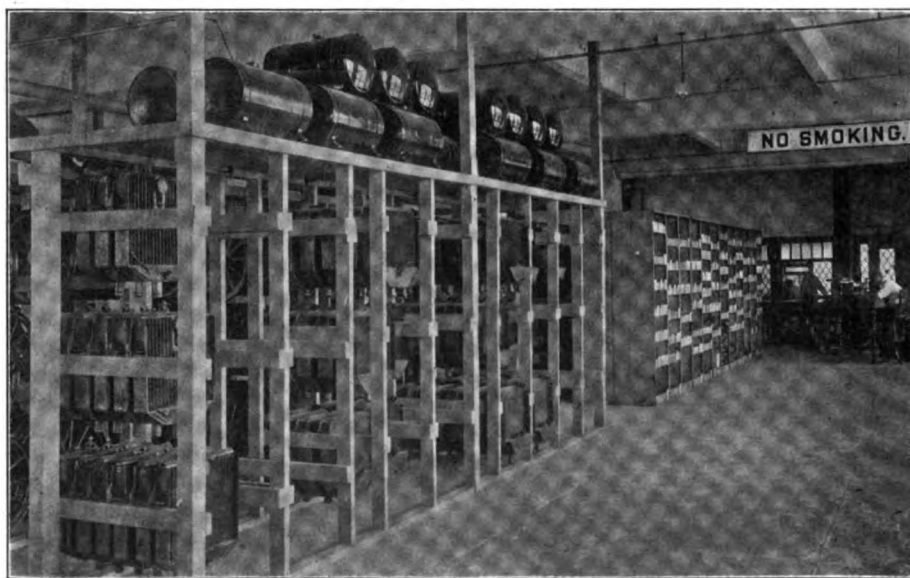
The second floor has the large office at the front; an immense stock room with steel bins and racks full of Ford parts for all past and present models; and the packing and shipping department at the rear. In the stock room there is kept a perpetual inventory of over 5,000 items and group



AMPLE SPACE AND LIGHT CHARACTERIZE THE REPAIR SHOP

however, will be in Long Island City. It is not impossible that we may rent some of the upper floors of our Broadway building to suitable people for offices and lofts, now that we shall not require them for storage and repair purposes.

"Certain moral effects on Ford dealers are expected to follow the erection and maintenance of the service building. The present generous size of the building, the extent of our investment in it, and the provision we have made for increasing it in the future, all go to show our faith in both the immediate and the distant future. Like a certain proportion of automobile dealers in general, some of our dealers have been very wary lest some sudden blight of overproduction or change in conditions might arise between one season and another, and they have been reluctant to make any considerable investment in the business themselves, in the way of headquarters, stocks of repair parts and the like. Our own service building will show our good faith in persuading them to regard the agency for our cars as a proper basis for adequate permanent investment on their part. The fact that we make the very minimum of changes in our agencies from year to year, and do not take an agency away if a man comes anywhere near doing his share of the business, also helps us along this line. The whole object, of course, in urging dealers toward following our example in corre-



A CORNER OF THE STOCK ROOM FOR REPLACEMENTS

which, as indicated, is 80 x 275 feet, with remarkably high ceilings. As the building was only opened this month, the basement, which is to be used for storage purposes, was simply a great, barren vastness of concrete floor, with a boiler room and coal bunkers walled off in one corner. It looked big enough to hold several hundred cars. The main or ground floor has the showroom in front, for receiving visitors and

units of parts for Ford cars, with a system that gives ample notice when any particular item is getting low.

Practically all work on cars is done on the third floor, where the repair shop and assembly floor is located. The necessity for pits is avoided by short movable inclined runways that elevate either end of a car and permit a workman to get underneath. The room for tools and supplies,

with a check system, is on this floor, as is the machine shop, which is fitted with lathes, testing stands and other necessary equipment. The varnishing and finishing room for bodies is in front, with dustproof compartments where the painting and varnishing jobs may dry to best advantage. Sanitary drinking fountains, metal cans for waste and plenty of "No Smoking" signs form an obligato to the general equipment throughout the building, which also has a private branch exchange telephone system and a special fireproof and burglary-discouraging vault.

Like the showroom, the office is a solarium, with daylight flooding it from three directions. Plaintiff has selected the sunniest corner as the location for his large,

WHAT ONE GIFT MOTOR CAR DID

**It Made the Amir of Afghanistan Boom
Automobiles and Order Good Roads
—The Effects.**

Owing to the peculiar conditions existing in Afghanistan the automobile presently is to enjoy the distinction of becoming the sole means of modern transportation in use. After years of semi-barbarism the Amir has become a motorist. Consequently, as the indulgence of the pastime requires good roads, the decree has gone forth that good roads shall be built forthwith, while to give permanent impetus to

the highest mountainous region in the world.

Mexico's Market for American Cars.

Supplementing his previous report as to the good market offered by Mexico to American automobile manufacturers, United States Consul William W. Canada, stationed at Vera Cruz, calls attention to the number of automobiles imported from Europe during 1910, all of which arrived at the port of Vera Cruz and were reshipped to Mexico City, the capital. The cars imported from the different countries were as follows: From Germany, 151; England, 8; France, 11; Spain, 1; United States, 38. Germany is credited with 151, but the major part of these machines came from France and were credited to Germany because they came in German vessels.

"Great care should be taken by shippers when packing for export," says the Consul. "Automobiles imported from Europe are completely boxed up, whereas some American machines are sent to Mexico in crates covered with paper. In one instance brought to the attention of this Consulate the paper was torn and a watch had to be put upon the crate to prevent the theft of detachable fixtures."

Mitchell Cars to Be Remy Lighted.

As the culmination of a series of exhaustive tests, the Mitchell-Lewis Motor Co., Racine, Wis., will equip the higher priced Mitchell cars for 1912 with the Remy magneto light. The system, it will be remembered, is one in which a special Remy magneto is used for both ignition and lighting, a winding around the magneto serving to cause the generation of additional current, which is collected by a set of brushes and stored in a battery or used to light the lamps directly according to the condition of the battery. When the engine is at rest the battery automatically takes up the lighting load. When the battery is fully charged, and the engine is running, an arrangement of automatic switches diverts the current directly to the lights. The battery therefore is maintained in a fully charged condition.

Show Question Splits Spokane Dealers.

Spokane automobile dealers are in the midst of a "merry war" and the prospects are that the residents of the Eastern metropolis of Washington will have two automobile shows during the Inter-State Fair this fall. The Spokane Automobile Association has contracted for all the space in the automobile hall at the fair grounds, thereby cutting out dealers who are not members, the fair management having ruled that no automobile exhibits will be permitted except in the hall assigned for that purpose. The anti-association dealers threaten to rent a separate hall for the week and in addition to organizing a rival exhibition give daily automobile parades.



HOW THE REPAIR PIT HAS BEEN SUPPLANTED

flat-top desk, as he finds it a happy contrast to being stowed away in the nocturnal recesses in the middle of a Broadway building closely crowded by neighboring structures. At first he thought of dividing its 80 feet of width and generous depth into partitioned-off rooms for the various divisions of the office force, but when it came to the pinch he did not have the heart to do it. Scientific arrangement of the desks, telephone exchange and other office appurtenances will be employed.

"Vapor Cooling" in Ohio Falls Car.

Embodying the rather unusual engine which at one time was incorporated in the Jonz car, the first 40 horsepower, five passenger machine of the American Automobile Co., of Ohio Falls, Ind., has been completed and is being exhibited. The engine is two-cycle, waterless, valveless and "vapor cooled." The "vapor cooling" is effected by making the compressed crank case mixture sweep certain radiating surfaces on the under side of the pistons. The company is occupying the former New Albany woolen mills.

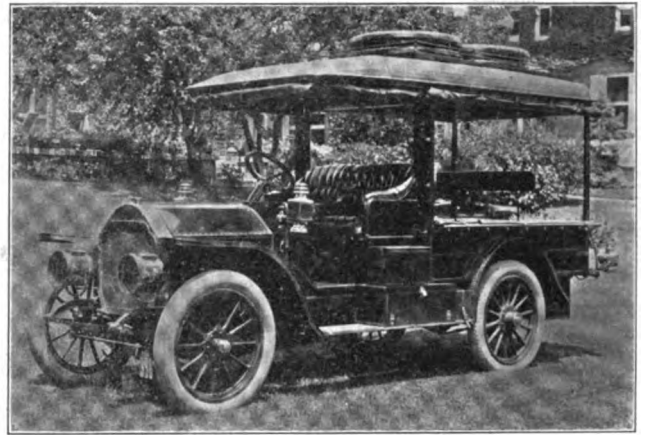
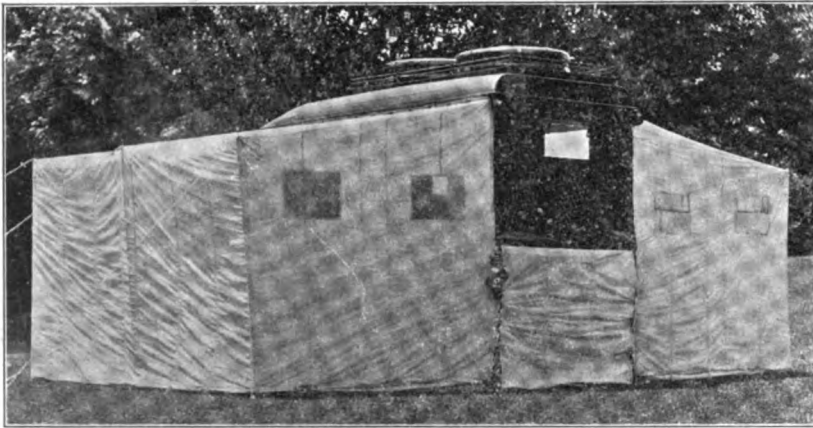
the movement a motor vehicle service is to be introduced over a 200-mile route across the northwestern frontier. For this purpose it is said that the Amir has placed an order for rolling stock to the tune of over five lakhs of rupees, or \$162,000 and upwards, with P. Stewart, of the Bombay Motor Co., Bombay.

The impending revolution in transportation is the direct outcome of a piece of subtlety on the part of the Government of India in presenting a fine car to the Amir when he last visited India. Before the time of his return the Amir was so enthused with motoring that he decided not to abandon his new possession, but to provide means for its successful use at home. Hence the projected highway improvement, which has caused the potentate no particular mental or financial strain, since it was necessary merely to order the construction of the roads radiating from his capital at Kabul by forced labor.

The new motor line will run from Peshawar, which is in British territory, to Kabul. Its route lies through the celebrated Khyber Pass in the Pamir plateau.

THE MOTOR WORLD

HOW THE MODERN CAR HELPS MAN DO MANY THINGS



SENATOR DUPONT'S CAR DISGUISED AS A THREE-ROOM FLAT - AND HOW IT LOOKS WHEN ON THE ROAD



SOMETHING NEW IN ADVERTISING—SHOOTING CIRCULARS FROM A CANNON AT INDIANAPOLIS FAIR



ABBOTT-DETROIT CROSSES DESERT ON CANVAS STRIPS



KELSEY MOTORETTE ON ALABAMA "ROAD"

DUPONT'S UNIQUE CAMPING CAR

Delaware Senator Has Special Vehicle From Which He Will Oversee Road Work—Its Ingenious Appointments.

Having decided to build a broad highway across his native state with his own money and under his own supervision, Col. T. Coleman Dupont, United States Senator from Delaware, does not permit any "grass to grow" under his feet, and goes about the carrying out of his project in a systematic and detailed manner. Realizing that if he wishes to supervise the construction of the road he will have to live in the open air for considerable periods, and desiring to be as comfortable during these periods as modern ingenuity can make him, the senator has purchased a specially designed touring car with as unique an arrangement of "home comforts" as could be obtained.

The car is a Stoddard-Dayton 45 horsepower chassis, with the regulation 115-inch wheelbase. But instead of carrying a five-seated touring body, it is furnished with a long body, which is illustrated elsewhere, so laid out that it furnishes enough space to accommodate a six-foot hair mattress. On each side of the body are lockers, six inches wide, running the entire length of the car, and affording packing space for supplies. Above the body is a permanent top with a slat rack on the under side holding four vulcanized fiber provision boxes, and another special rack for the temporary filing of drawings, maps, etc. On the outside of the top, in a rack with iron railing, are four spare tires.

The lockers contain all manner of apparatus, such as a portable cooking stove and kettles, pots and pans; a storage battery and dry cells; tent material, and a very complete tool outfit; oil reserve tanks and other supplies. The tent is notable, as it is constructed of balloon silk, water-proofed and capable of being compressed into a very small space. Six poles, each six feet high, are carried on the running board alongside of the car. The curtains are so arranged as to form three compartments, two outside of the car body and one car compartment inside.

Another interesting feature of the equipment is the electric light plant. It consists of one Edison 150 ampere hour storage battery, charged constantly by means of a dynamo driven by the flywheel of the engine. The storage boxes fixed inside the car may be removed when stops are made and may be easily carried out into the camp. They are upholstered on top and serve as seats while camping. They contain blankets, sheet iron trays, etc.

The road which Senator Dupont is making preparations to build is to be from 100 to 200 feet wide, running for a distance of 103 miles in a north-south direction

across the state. Although it has been variously announced that this road is a present from the senator to his native state, it appears from earlier interviews given by him that he probably will recoup himself for the \$1,500,000 which it is said it is going to cost, by collecting a toll from automobiles and other vehicles using it. Evidently Senator Dupont is determined that this road shall be built properly, without the deplorable "shoddy" work so often met with in the construction of roads built with the money of the taxpayers. He is going to see that it is "built right."

Highway Advertising is Unlawful.

Friday, September 1st, marks the terminating of the free advertising privilege within the highway boundaries of New York State. Accordingly motorists in many sections of the State are planning to go forth on grand campaigns of pillage and destruction on that day, removing the many signboards and placards which deface fences, trees and guide boards in the country districts. The movement has the sanction of the State government, being in line with the enforcement of a law passed by the last Legislature, which reads in part as follows:

"A person who * * * in any manner paints, puts or affixes any business or commercial advertisement * * * on or to any stone, tree, fence, stump, pole, mile board, mile stone, danger sign, danger signal, guide post, billboard, building or other structure within the limits of a public highway is guilty of a misdemeanor. An advertisement in or upon a public highway in violation of the provisions of this subdivision may be taken down, removed or destroyed by anyone."

The Good Roads Committee of the American Automobile Association has requested the fifty odd automobile clubs in the State to make an effort to clear the horizon of these obstructions as quickly as possible. The only signs that cannot be touched are those in the forest district of the State that have been put up by the State Conservation Committee. They are cloth notices in regard to forest fires.

New Connecticut Bridge Is Opened.

Motorists of Connecticut and adjoining States commemorated Thursday, 24th inst., the opening of the new million dollar bridge over the Connecticut River, between Saybrook and Lyme. Over 500 motorists took part in the parade, which officially marked the opening, and nearly as many more crossed in order to be among those who visited it during the first free day, for it is to be a toll bridge. Addresses were made by Lieutenant Governor D. A. Blakeslee, Col. James N. Shepard and Mr. James H. Day, the Bridge Commission. Senator Stiles Judson and Rev. Frederick Sexton. The toll charges are: Touring car with driver, 53 cents, runabout with driver 38 cents and motorcycles 15 cents.

PUTTING IT UP TO THE OWNERS

New York Garageman Charges Majority of Motorists With Being Unreasonable—How They Keep Agreements.

If they could see themselves through the eyes of the garagemen, it would take some of the pride out of a good many motorists—not alone in those instances where the garageman regards his customers as mean and overly exacting but also where he regards them as exceedingly foolish in the way they manage affairs relating to their cars. Into a sympathetic ear the manager of a large uptown New York garage released some of his observations as follows:

"It's a pleasure to serve some customers. They pay their bills on presentation, after auditing them carefully, and they always keep the garage properly advised as to when they want their cars, so that their machines are always ready for them at the right time in spick and span order. But like everybody else in the world, the garageman has his troubles, and they are not confined to chauffeurs and help. Some of the customers are worse than any chauffeurs or disloyal employees.

"In the first place, many owners when seeking storage for their automobiles wrangle over the terms. There is nothing criminal in that, but it ought to be generally known that the rates at good garages are pretty well established and that beyond a certain point it is a waste of breath to hold out for special inside prices lower than anybody else gets. With most of these Marathon wranglers, however, it is the case that they would not come to your garage were it not for the fact that it is near their homes. They will not keep a car at a distant point, even though they employ a chauffeur. The gasoline and the time consumed in going to and from the garage is an important item to them. Many of them offer terms that would be a considerable actual financial loss to the garage.

"It is much cheaper to store a car in the suburbs than in the congested part of a city, but quite aside from this most owners want their cars kept near their residences. If the owner does not employ a chauffeur, he prefers that the walk to the garage be short, and if he does have his own driver, he can find out without much delay what is preventing his man from keeping an appointment.

"With these suburban owners the usual request or demand for a cut in rates is based on the representation that the car will not be used very much and that therefore it will not be necessary to wash the machine and polish the brass more than once a week. This would hold good, perhaps, were the car taken from the garage only once a week, but the garageman does

not care much about having machines that are on almost dead storage. It is the cars that are used that are counted upon for profits in the business. They consume gasoline and oil, which help put money in the cash drawer.

"Should the customer be accommodated with a slightly lower price because of the fact that his car is to be used so little, he nevertheless will kick like a steer the first time his car is brought to the house unwashed, after it has been washed three or four days in succession. When reminded of his special arrangement, he generally has forgotten that any such things were said, with the result that the garageman who cannot show a written and signed contract covering the case is in a bad situation. In some cases he yields in order to prevent a neighborhood row.

"Tough customers are found among the men who drive their own cars. Some of them have the trick of getting the garage down to the lowest possible rate and then offering one of the employees extra money to pay particular attention to their particular cars. We have such a man here. He drives a runabout, for which our regular charge is \$25 a month storage. This man lives nearby and generally goes out each evening and on Sunday. He did not want the car washed or polished more than once a week, and declined to pay more than \$20 a month storage.

"He was the first one to make me a special proposition like that. Thinking that he was in a position to send the garage a lot of transient business I agreed to his terms. He had hardly concluded talking with me before he slipped around to one of the employees and had offered him \$2 a week to look after the car, polish the brass, etc., every day. This employe belongs to the day force, and in order to do the work would have to neglect his own work, as all the polishing is done at night. Consequently he gets one of the night polishers to do it.

"Figure it out and you will see that this owner is paying from \$28 to \$30 a month for service that he could have gotten for \$25 a month. Furthermore, he is not getting as good service. All the employees in a garage get to know the owner who has insisted on a cut rate, and no matter whether that man pays out extra money to one of the men to look after his car, he does not get good service. For my part, he receives exactly what is contracted for, and the employees carry out the contract to the letter. They have no use for the cut-rate customer, despite the fact that one of them may be receiving tips from him. Tips, as a rule, are divided, but where one man is picked out individually he retains what is given him. The usual tips in the garage are from transients or tourists, as they realize that their unheralded arrival and the quick work that is necessary to take cars of their traveling needs rather disturbs the regular routine. Tips are not

looked for, I am happy to say, but in such cases are generally given.

"Many misunderstandings arise with the owner who has purchased a second-hand car, which has been overhauled and repainted before entering regular service. He seldom wrangles over terms, but he is a kicker of the first water about what happens to the finish of his car, and blames it on the garage when it gets dull and shabby all too quickly. A repainted car will not hold its finish like a car fresh from the maker, and it does not take many washings to dull the finish.

"On repainted cars we do not permit the washers to use soap of any kind, and we make the finish last as long as it will. In addition to the complaints about dull finish, there will be kicks about stains that find their way to the body surface. It does not make any difference whether the stain was acquired outside the garage or not, the garage is blamed. In all good garages, when a stain, scratch or dent is noticed, the washer reports to the foreman and then to the manager. Frequently the marks are only hand marks or finger prints, often made by the owner, and which stand out especially conspicuous on refinished cars.

"Quite as many owners cannot hold a chauffeur for any length of time as there are chauffeurs who cannot hold a job. I know an owner with two cars, who had eight chauffeurs in seven weeks. Then I secured for him a man whom I consider a high class chauffeur in every respect and who thoroughly understands every phase of the business. He would not have taken the position except that at the time his former employer had released him for the winter and he had a family to support. A very moderate salary was agreed on, with the promise of \$5 per week bonus additional provided the chauffeur held the position for six months.

"That chauffeur fulfilled his part of the contract in every particular, although the employer had no thought for the man's comfort. The owner would frequently send the car out in extremely bad weather for no other purpose than to take the 15 year old son to a confectioner's shop. The automobile would have to be taken from the garage to the hotel, make the trip for candy, return the boy to the hotel and then go back to the garage, covering perhaps a mile or two, when it would have been easier and more healthful for the boy to have walked the two blocks for his candy.

"The two cars of this owner were not supposed to be on live storage at all times, one being dead storage excepting on Sundays, when it was used, and the other or 'small car,' as it was called, not to go out on Sundays. For this a special concession had been made at the garage. It was not long, however, before the man and his wife would use both cars daily, and when the bill for extra service was presented there was a howl. This man did not keep faith with the chauffeur concerning the \$5 per

week extra that the latter was to receive for six months' service. In exactly five and a half months he decided to put up the cars for the summer and go to Europe. The chauffeur had to seek another job without having his expected \$130 for a rainy day. That is one type of owner.

"Another type is the man whose wife has the purse strings and pays the bills. He is the old maid of the fraternity and he is constantly 'phoning about one thing or the other that 'the wife' wants. I would rather deal direct with the woman than the husband. We have a number of cars here owned by women who have chauffeurs. These ladies transact their affairs in a business-like way and their complaints are very infrequent. They are as particular as anyone could be and want the best of service. They get it. The man whose wife pays the bills endeavors to make the garageman believe that 'Madame' is a crank, when it is the other way around. He is the crank, and when arranging to store the car or cars, drives a close bargain by insisting that this or that little detail need not be bothered about. Then just as soon as things begin to run smoothly he rings in complaints from the wife. He uses this method to get more than called for in the original agreement. Such men generally permit the bills to remain unpaid until threatened with suit. They are afraid to give them to 'the wife.' I have come across several such men during my experience; then have happened by accident to meet 'the wife' in a business way and found that things as represented by the man were quite at variance with the facts.

"The main thing an automobile owner should do after acquiring a car is to secure the service of a competent chauffeur. I do not mean a graduate from one of the so-called automobile schools, but a man who has had experience and can give the best of references from other automobile owners and people connected with the industry. Look him up as you would an employe in any other line of business, not only as to his ability to drive a car, but as to his knowledge of the motor, etc. Then give him absolute charge. Since the owner trusts the chauffeur with the care and lives of the members of his family while out driving, he should not hesitate in giving him charge of the automobile. Then the owner should never permit the younger members of the family to call for the car at will, and should let instructions be given only by himself or wife. The car then will be well handled and the owner will receive good service on the part of everyone. I know a number of chauffeurs working under these conditions, and I do not think they could be induced to leave their present employers. Others, however, could easily be 'stolen,' provided the new employer sought them out. I do not mean the kind that would demand fancy wages but those who only desire to receive all that is just for the service required."

Standardizing the Control Lever System

It is an undisputed fact that a large percentage of automobile owners knows little, and cares less, about the structural details of their cars—until some derangement of the mechanism becomes apparent. Then enlightenment, of a kind, comes with a rush. A nut or a bolt is lost on the road and the car is stopped at some wayside repair shop. Possibly and quite probably the village smithy is appealed to, and if by any chance he can replace the lost part with another that fits, the motorist goes on his way rejoicing.

If he cannot supply the proper size bolt

long by one-half or one-quarter. But the owner was not the only one to appreciate the advantages of standardization. Its possibilities long have been appreciated by manufacturers as well, though little in this direction was accomplished until comparatively recently. What has been accomplished resulted primarily from the efforts of the mechanical branch of the now defunct Association of Licensed Automobile Manufacturers, the foundation work of which is now being utilized by the active Society of Automobile Engineers. At the last meeting of that body, a large number

that they master the differences of movements necessary.

Such an arrangement would possess many advantages, but there are any number of reasons why it scarcely is possible. This matter of standardization of control levers received attention at the last meeting of the S. A. E., with the result that three "standard" forms of segment, or gate, for selectively operated change gears, as shown in Fig. 1, were recommended for adoption by manufacturers. As may be seen, in each of the three, the starting position is on the inside and to the rear, the reason for this being that with four speed changes the second most frequently is used for starting, the lowest being reserved for hill climbing. The uniformity of movement for both three and four speed changes is further carried out by providing that the next higher change in each is obtained by an outward and forward shift, final drive in each case being obtained by a straight pull back. Likewise, in each case, the reverse is obtained by a forward movement in the innermost slot.

Though the system suggested has the merit of uniformity, and it is not unlikely that it will come into more general use, there are several reasons, chiefly mechanical, why its general introduction may be a matter of several years. The principal reason is that there scarcely are two makes of cars which are built sufficiently alike to render an immediate change practicable, did the makers desire to adopt the new standards. Though at first glance it might seem that the adoption of such standards would necessitate only minor alterations, a study of the accompanying illustrations will show that while the necessary alterations readily may be made in some instances, in others they require more extensive changes, and hence, are not likely to go into effect save in entirely new models.

In the arrangement of the Winton control mechanism, shown in Fig. 2, is depicted a favorite method among a large number of manufacturers of enclosing the rod, A, by means of which the emergency brake is applied, inside a sleeve, B, to which the gear shifting arms are attached. The selective action in this case, by means of which four forward speeds and one reverse are obtained, is made directly in the gear box, an extension of which encloses the shifting arms.

The Kissel mechanism, which is shown in Fig. 3, while similar in that the same telescopic arrangement of the rod, A, which actuates the emergency brake, and

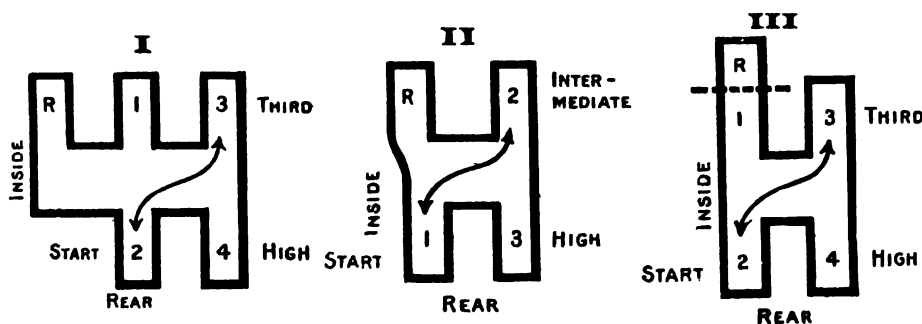


FIG. 1—PROPOSED STANDARD GATE FOR SELECTIVE CHANGE GEARS

or nut, and though repair shops, both orthodox automobile repair stations and those which glean most of their business from owners of horse-drawn vehicles, generally are well stocked with a miscellaneous assortment of such accessories, not infrequently a nut or a bolt that will fit cannot be found, the most natural question in the world is, "Why?" "Why should automobiles be bolted together with bolts of special sizes—sizes that seldom are encountered in other branches of mechanical endeavor?"

Then the owner commences to learn. He learns that a nut with 20 threads to the inch cannot be used. He must have a nut with 21 threads, or 19, or 23, or some other number. That 20 threads to the inch for a bolt of that particular diameter has been standard for years among carriage builders and practically everywhere else where bolts and nuts are used makes no difference. When he built the automobile, the manufacturer evolved a new size—for reasons best known to himself—and the owner, figuratively, is "up a tree."

Of average intelligence, probably the next impression which the owner receives is that if, when his car had been built, there had been some system whereby only standard sizes of nuts and bolts had been used, he would not have been delayed as

of standards were adopted. Among them was the adoption of a modified standard for nut and bolt sizes. It follows that after the general introduction of these standards an owner may be much more certain of obtaining the size of nut or bolt he wants because only standard sizes will be used and the dealer or repair man will know what sizes to stock. Eventually it is hoped that as far as is practicable all parts of the automobile will be made in conformity with certain standards which may be agreed upon by a majority of the manufacturers. It readily may be seen that such a system would work advantageously to both purchaser and manufacturer—to the purchaser in that repairs and replacements would be facilitated, and to the manufacturer in that first cost would be reduced because of the possibility of using stock parts at decreased cost; the use of special parts always entailing extra expense.

Following out the general idea of standardization, persons of purely lay minds are not unlikely to ask why if some parts are standardized others are not. And that part of the mechanism which is suggested most often as particularly adaptable to standardization is the control levers. Why should not control levers, at least, be standardized so that Tom, Dick or Harry could run each other's car without it first being necessary

the sleeve, B, by means of which the three speeds forward and reverse are obtained, is quite different as regards the manner in which the selection is secured. Instead of being made in the case as in the other, it is made outside, the selector forks being placed at the front of the gear case. Another variation which may be noted is that the emergency brake rod is carried clear across the chassis with a bearing in the center to insure rigidity.

Two separate rods for gear shifting and emergency brake, respectively, are used on Corbin cars, the arrangement being shown in Fig. 4. In this arrangement also, the gear shifting rod, A, enters the gear case, the selective operation being made directly in the case. Three speeds forward and reverse are provided. With this arrangement

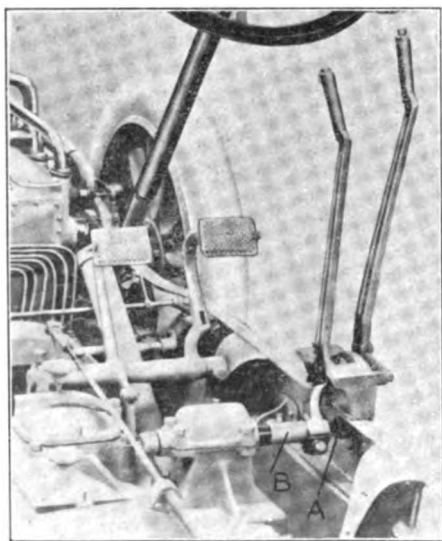


FIG. 2 WINTON SELECTIVE GATE CHANGE

of the emergency brake lever, the point of bearing, B, of the rod by which the brakes are actuated being further removed from the handle of the lever, slightly greater leverage is obtained.

In Fig. 5 there is illustrated another method of arranging the gear shift and emergency brake rods separately, though in this case they are placed side by side instead of one over the other. Obviously, the rod, A, actuates the gear shifting mechanism, and as in some of the others, the selective operation is made in the gear case, the rod entering through an extended housing on top of the case. Incidentally, the picture illustrates a clever method of providing for the adjustment of the brakes. The turnbuckle which is used for this purpose is locked by means of the "latch," which when fastened fits over the partly flattened rod and effectively prevents the adjustment being deranged by vibration. Its chief advantage is that it can be adjusted without the use of a wrench.

While in all of the control mechanisms which have been described the selective operation is made either in the gear case or at it in the Speedwell arrangement,

shown in Fig. 6, the selection is made at the segment or quadrant. The telescopic arrangement is carried even further in this instance, there being two sleeves, by means of which the gear changes are obtained,

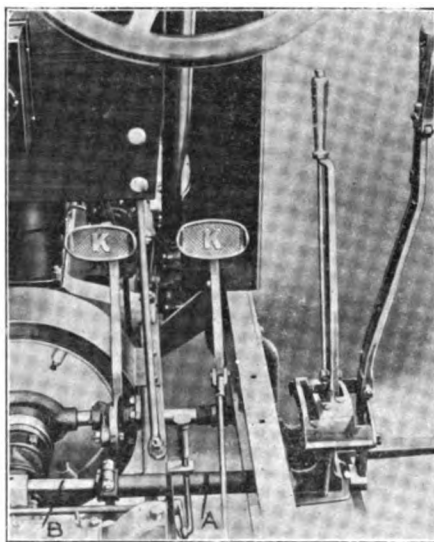


FIG. 3- DETAILS OF KISSEL CONTROL

and these enclose the rocker shaft, D, which actuates the emergency brake through the rod, E. The outer of the two sleeves, A, is attached to the shifter arm, B, and the inner sleeve is connected to the other shifter arm, C. The sleeve, A, carries a forked arm at its outer end so that when the hand lever is moved toward the body of the car it engages with the notches, permitting the rotation of the sleeve and

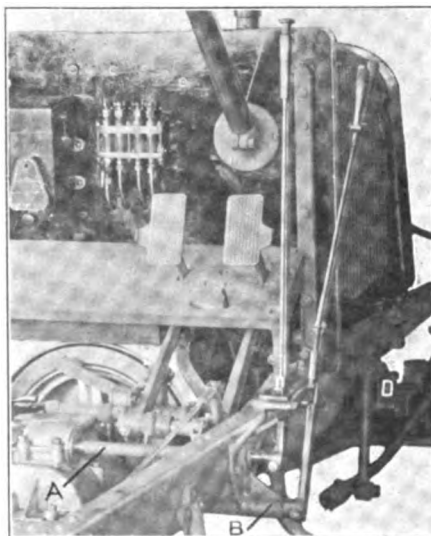


FIG. 4-CORBIN LEVER ARRANGEMENT

the consequent movement of the gear shifting arm. Similarly, the inner sleeve is arranged with an arm at its outer end which engages with the hand lever when it is moved outward, the shifter arm, B, thereby being actuated.

Indicative of the tendency toward unit construction, and also illustrative of one

of the more recent engineering accomplishments, the Columbia-Knight change gear mechanism, which is shown in Fig. 7, portrays graphically the element of simplicity which is possible with center control. The levers in this case are at the right of the driver, the car being of the left hand drive variety; four forward and one reverse speeds are provided. Not the least of the advantages of the center control is the elimination of parts which is possible. Cross rods are unnecessary, and other things being equal their elimination should make for greater ease of operation because of the decrease in friction. In addition to this advantage a greater proportion of the mechanism is fully housed and therefore less liable to injury. The arrangement il-

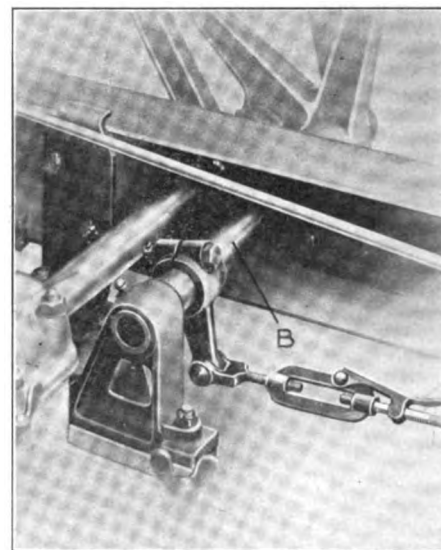


FIG. 5-SEPARATE CROSS SHAFT MOUNTING

lustrated also permits the manufacturers to offer an option on right and left hand steering without undue inconvenience or expense.

Gear shift and emergency brake levers, however, are not the only elements of the control mechanism which are susceptible of more or less standardization; it has been suggested on more than one occasion that the spark and throttle levers might also be so arranged as to provide some similarity in different makes of cars. Which is to say that of two cars in which both levers are placed on top of the steering wheel, as in the Knox wheel shown in Fig. 8, the throttle lever in each case might be definitely agreed on as the outside one or vice versa, though when so arranged the outside one logically should control the throttle opening because of its position nearer to the operator's fingers.

Often, too, these two levers are mounted on semi-circular quadrants side by side, the throttle lever in some instances being on the right hand quadrant and as often being on the other. Such changes as would make either one or the other of the levers always the throttle lever, in all makes of

cars in which that or a similar system was used, could, in the majority of cases, be made quite easily, and the liability to accident would be decreased. Naturally, the careful driver raises the hood of a strange car to determine "which is which"

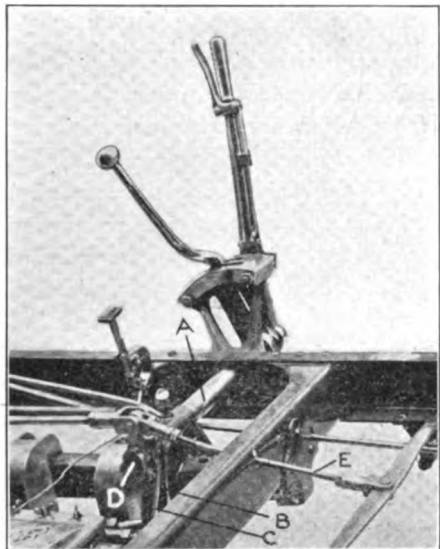


FIG. 6—SPEEDWELL GEAR SHIFT SYSTEM

before he attempts to drive, but if the positions of these little, but none the less important, levers were standardized, such measures would not be necessary.

Even where the levers are placed under the wheel on the steering column, as in the wheel which is illustrated in Fig 9, some system of "hook up" might be employed to advantage and it would entail little, if any, extra expense. For instance, of the two levers in Fig. 9, the lower one is the throttle, though owing to the proximity of the other to the wheel, more easily within reach of the driver's fingers, it might be

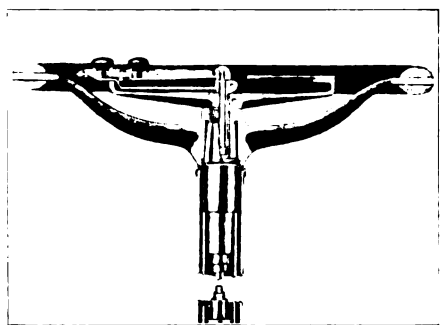


FIG. 8—KNOX ENGINE CONTROLS

supposed that the reverse was the case. In other makes of cars in which similar arrangements are used, the throttle lever is placed above the spark lever, and a driver going from one car to another scarcely could fail to be confused.

Owing to the increase in the use of the fixed spark, a number of cars now are being put out with but a single lever at or near the steering wheel, and this simpli-

fies matters considerably. Obviously that lever controls the size of the throttle opening. There are any number of ways in which this lever may be mounted, and as it is the only one to which the driver has to pay attention, its actual position makes little difference, provided, of course, that it is easily accessible. One of the comparatively recent developments in this respect is the S. G. V. arrangement which is shown in Fig. 10. It is nothing more than a small knurled knob mounted on one of the spokes of the steering wheel; by means of small bevel gears and suitably placed rods the throttle is controlled by the turning of the knob. In this and many other instances the driver's main dependence is placed in the employment of the foot accelerator.

Just how far standardization of control mechanism eventually will be carried is difficult to forecast. Certain it is, however, that today elements are much more standard (or more properly, similar) than they were in the early days of the automobile, and it seems within reason to expect that

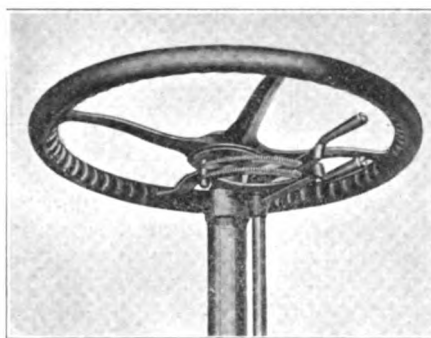


FIG. 9—ANOTHER CONTROL SYSTEM

with the further growth and development of the industry, standardization will be carried to greater lengths. Those motorists who are wont to rail at what they style "inconsistency" of design should remember that the development of the automobile has been none the less steady for its apparent lack of convergence to standard forms, and that inasmuch as standardization requires some little redesigning in many cases, that also may be slow of accomplishment, though it is hoped it will be no less sure.

To Make Gear Shifting Easier.

In those cars in which the construction of the gear shifting mechanism embraces a tube to which the gear shifting lever is attached and which slides over the rod by means of which the emergency brake is actuated, it is well occasionally to grease the rod where it is exposed to the atmosphere. Owing to the continual rush of air oil is of little or no use as it evaporates rapidly and not infrequently the rod becomes dry and causes trouble in gear shifting. A small quantity of grease will effect a cure where a large quantity of oil would

be effective for but a short time at the least.

Why Exhaust Pipes May Become Clogged.

Though clogged mufflers on more than one occasion have been accused of causing an unnatural falling of power, it should be

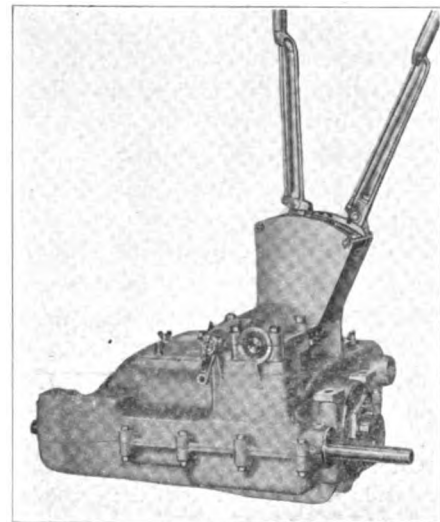


FIG. 7—COLUMBIA CENTER CONTROL

remembered that as often as not the real trouble lies in the obstruction of the exhaust pipe itself, where it joins the muffler; the area of the pipe may be considerably restricted at this point by an accumulation of burnt oil. This trouble is particularly prevalent in those engines which show a tendency to smoke. The burnt oil issuing from the engine is, of course, deposited within the whole length of the exhaust manifold and pipe, but the interior of the former and that part of the pipe which is near the engine is kept compara-

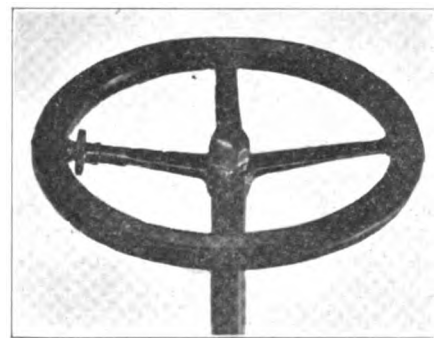


FIG. 10—SIMPLICITY OF S. G. V. THROTTLE

tively clean by the flame which issues from the exhaust ports of the motor. As the exhaust gases pass along the pipe, however, they are rapidly cooled as the flame extends but a small part of the length of the pipe so that the deposit near the outer end is not burned away as it is at the other end. Consequently any deposit which forms remains and rapidly accumulates.

GERMAN SUBSIDY STANDARDIZED

How Government Controls Use of Motor Trucks—Cannot Sell Without Permission—Quarterly Reports Required.

Following the various tentative arrangements with manufacturers and purchasers of motor trucks, in regard to the utilization of the latter in actual war or in mobilization trials, the Imperial German Government finally has decided upon a full set of regulations, rules and contracts applicable to all who desire to take advantage of the government subsidy offered. These regulations, which in fragmentary form have been followed for some time in the individual sovereign states composing the Empire, now are effective throughout Germany, and consist chiefly of the following requirements:

A subsidy is granted to the purchaser of a motor truck or "road train," providing the said purchaser keeps the vehicle in good condition and at all times at the command of the government, ready for road duty in either maneuver or actual war at a moment's notice. Such a road train, in order to fulfil the requirements of the war department, must consist of one motor truck and one trailer, the former carrying a useful load of at least 8,800 pounds and the latter one of at least 4,400 pounds. The dead weight of such a complete road train, inclusive of driver, helper, full gasoline tanks and all tools and winches, must not exceed 19,800 pounds. The motor must be geared to the driving wheels in such a manner that a speed of 10 miles an hour on level roads cannot be surpassed. Ordinarily the road train is required to make eight miles an hour on ordinary, level roads. The train must be capable of climbing grades up to 14 per cent., fully loaded and with loaded trailer; it must be built so as to support the addition of another trailer in emergency cases, and must still be capable of making 10 miles an hour when occasion calls for such a speed.

The subsidy granted consists of the sum of \$1,000 paid by the government at the time of purchase and four annual payments of \$250 each, payable at the end of the second, third, fourth and fifth year of usage; amounting, therefore, to a total of \$2,000 for each road train. Special awards may be added to these amounts, if the company or individual using the road train makes valuable improvements tending to increase the usefulness of the vehicle, or succeeds in developing a particularly efficient operating organization, whose abilities might prove of value to the government in war time.

In granting this subsidy the government requires the careful handling of the train during the five years allowed as the term of its useful life; it requires that each vehi-

cle be fully insured against fire and accident; that a sale of such subsidized vehicle is only permitted within the confines of the Empire, provided the special permission of the minister of war is obtained: a sale to any citizen of another country, or the removal of such a subsidized truck across the German frontier is strictly forbidden. The owner of the road train furthermore is required to submit every three months a complete tabulated record of the work done by the train, and to permit the government's agents to examine the condition of the train at any and all times. Should he fail to fulfil these conditions a fine of \$125 is to be imposed for every failure. The owner must, furthermore, send his vehicles twice a year on a reliability tour under the supervision of the government, and in case his trains do not measure up to requirements his annual subsidy is immediately canceled.

Ramblers 96 Per Cent. Kenosha Made.

Since the recent completion of extensions to the plant of the Thomas B. Jeffery Co., Kenosha, Wis., 96 per cent. of all the parts which go to make up Rambler cars now are made in the company's factories. As indicative of the care and supervision which the production of such parts under its own roofs permits, it is stated that during 1910 and 1911 the average value per car of parts sold for the 20,600 Ramblers in use was \$14.58. This figure, however, covers the total number of parts purchased by all owners of Ramblers of every age varying from ten years down to two years.

Motor 'Buses to Replace Trolley Cars.

Delaware has a new motor 'bus line. It is operated between New Castle and Delaware City, and replaces the trolley cars between those points. Until August 1 the railway was leased by the Wilmington Southern Traction Co., which owns the line between Wilmington and New Castle, but because of a dispute between the owner and lessee the Delaware City road ceased operations and the New Castle Co. began a freight and passenger automobile service. The route covered is a little more than nine miles long and leads over excellent roads, so that little trouble is expected on that account.

Hindoo Tire Factory for Calcutta.

With the idea of absorbing the local trade, which has attained to not inconsiderable proportions, an attempt is being made by a group of Indian capitalists to establish a tire manufacturing business in Calcutta. While a good deal of rubber is now being grown in parts of India and Burma, it is at present shipped to England, manufactured into tires and reshipped to India. High hopes are attached to the project through the possibilities of saving the double shipment charges, duties and one or more middlemen's profits.

TRUCKS STILL BARRED FROM DOCKS

Important Question Still Unsettled—Insurance Bogey No Longer a Factor—Pier Owners Explain Their Actions.

Although nearly a year ago it looked as if all the piers and docks on New York's water front were to be opened to gasoline trucks, the problem at present seems hardly nearer a final settlement than before. Of the 41 dock managers concerned, 22 already have opened their piers to the motor-driven truck, but the attitude of the remaining 19 is somewhat discouraging—the more so as the latter include all the big transatlantic steamship companies and the more important coastwise lines. Among those which admit motor trucks to their docks are, of necessity, all ferry and railroad lines, the Hudson River lines and the United Fruit, Ward, Munson and Red "D" lines.

The uncompromising attitude of the dock proprietors is maintained, it would appear, largely through lack of confidence in the real safety of operation of the gasoline motor truck, or perhaps, through timidity inspired by the great risks continually run, this despite repeated assertions to the contrary. The insurance question, which continually has been paraded as an excuse for excluding motor trucks, fast is losing its power as a restrictive influence—at least such is the assertion of the insurance men themselves. Although some of the pier managers continue to bring forward the existence of certain warranties which were signed several years ago and which forbid the admittance to motor trucks to piers. Manager Willis C. Robb, of the New York Fire Exchange, is authority for the statement that all such agreements have been canceled and are not now considered in force by the exchange. Last fall a ruling was obtained from the exchange whereby that organization announced its decision of requiring no further prohibitive rates from dock owners who admitted trucks to their premises. The policies at present in force, according to Manager Robb, not only permit the use of trucks on piers for haulage purposes, but require no extra premium where trucks are so employed.

Among the many answers given by pier owners and dock managers as to their attitude, the one of "Waiting to see what the other fellow will do" appears to be the most frequent; others, such as the Scandinavian, Holland-America, Royal Mail Packet, Panama, and Italian lines, are very much against admittance of the trucks under any circumstances, the first two mentioned going so far as to express the opinion that their companies will never consent to their use on piers. It is, however, probable that the growing displacement of horse-drawn trucks by motors will force their admittance.



991,111. Spring Hub. John Berner, Whitefield, Marshall county, Ill. Filed Nov. 30, 1909. Serial No. 530,662.

In a resilient wheel in combination, a hub member, pairs of parallel winged housings integral with said hub member, resilient springs carried between said parallel walls, a spoke carrying member surrounding said resilient hub, wedge shaped members on said spoke carrying member constructed to co-operate with V-shaped openings formed between the housings, side plates for retaining said hub member and said spoke carrying member in normal relationship, and means for retaining said side plates in position.

994,107. Vehicle Top Bow Holder. Sherman T. Allen, Detroit, Mich. Filed Sept. 19, 1910. Serial No. 582,631.

1. In a vehicle top bow holder, in combination with a frame piece, anchorage pins engaging transversely thereof at intervals, a locking piece normally out of locking position with respect to said anchorage pins, a key member for moving the same to locking position, and a plurality of clip members carried by the bows of the vehicle top, adapted to engage said pins within the frame piece, and to be locked in such position by the movement of said locking piece thereagainst, substantially as described.

994,121. Folding Windshield for Automobiles. Orra A. Byron, Denver, Colo., assignor of one-half to T. Watkins Fugate, Denver, Colo. Filed Feb. 13, 1909. Serial No. 477,675.

A windshield composed of two hinged members, the hinge pintle of the said members extending beyond the edge of the said shield, and disks coaxially mounted on the hinged pintle, on the extending portion thereof, one of the disks being secured beyond its center on one member of the shield, and the other disks being arranged on opposite sides of the first named disk, and secured beyond their center to the other members of the shield, and layers of material also mounted on the extending portion of the hinge pintle and interposed on opposite sides of the first named disk to increase friction.

994,130. Gearing. Paul Daimler, Unter-
turkheim, Germany. Filed Oct. 25, 1906. Serial No. 340,549.

In a motor vehicle, a speed changing mechanism comprising a first and a second shaft, a shaft arranged in alignment with the first shaft of the speed changing mechanism for driving a machine mounted on the said vehicle, a clutch coupling between the adjacent ends of the said shafts for connecting them together, and a third shaft situated below the second shaft of the speed changing mechanism, the said third shaft extending in both directions, gear wheels on the said motion shafts for transmitting rotary motion from the first to the second and from the latter to the third motion shaft, all combined substantially as and for the purpose set forth.

994,141. Friction Clutch. Charles T. Fletcher, Philadelphia, Pa., assignor, by mesne assignments, to Frank E. French,

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Philadelphia, Pa. Filed Aug. 17, 1908. Serial No. 448,981.

1. A friction clutch comprising an inner drum having an outward end flange, rings mounted on said drum, a rib-and-slot connection between the rings and drum whereby they turn as one and permit axial movement of the rings, an outer drum, a detachable end flange for the outer drum, bolts connecting the end flange and the outer drum, and a second set of rings alternating with the first set of rings and peripherally notched to slidably engage the shanks of the bolts, substantially as described.

994,191. Carburetter. Jonathan Peterson, Brooklyn, N. Y. Filed Sept. 15, 1910. Serial No. 582,123.

1. In a carburetter, the combination with an open fixed air passage, of an auxiliary air intake, a gate for closing the intake, means normally holding the gate in closed position, a support for the gate, a cam carried and operated by the gate, a block engaging the cam and movable in a plane intersecting the gate support, a needle valve adjustably mounted in the block, means for holding the block against the

cam, and a fluid nozzle co-operating with the valve.

994,195. Carburetter. Sydney I. Prescott, New York, N. Y., assignor to Jonathan Peterson, Brooklyn, N. Y. Filed Apr. 21, 1910. Serial No. 556,802.

1. In a carburetter, the combination with a fluid nozzle, of a valve co-operating therewith, a support for the valve, a two-part airgate, and cams connected with the airgate and contacting with the support, whereby a movement of either part of the airgate produces a movement of the valve and support.

994,247. Removable Tubular Rim. John Clarence Cole, Chicopee Falls, Mass., assignor, by mesne assignments, to The Fisk Rubber Company, Chicopee Falls, Mass., a Corporation of Delaware. Filed July 27, 1908. Serial No. 445,498.

A vehicle wheel, and a tubular rim fixed to the felly thereof comprising one side parallel with the plane of the wheel, the opposite side being disposed at an acute angle to said plane, and an annular band secured over said inclined side, and over

the outer edge of said first-named side, there being a seat thereon for a demountable rim, together with an expansible ring bearing on said inclined side of the fixed rim, and means to force said ring against said side into locking engagement with the underside of a demountable rim mounted on the fixed rim.

994,317. Traction Engine. Pliny E. Holt, Stockton, Cal. Filed Jan. 19, 1909. Serial No. 473,194.

1. A traction mechanism comprising a main frame, a traction truck secured thereto and having side bars, idlers mounted in opposite ends of said truck, an endless traction belt passed around said idlers, a series of rollers carried by said side bars and located between said idlers, said rollers engaging the lower stretch of the belt to hold the latter in contact with the ground, a super frame secured to said side bars at a point between said idlers and above the plane of the latter, and a driving sprocket mounted in said super frame, the upper stretch of said belt being suspended from said sprocket whereby said belt is always taut irrespective of the direction of rotation of said driving sprocket.

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THE MOTOR WORLD

Vol. XXVIII.

New York, U. S. A., September 7, 1911.

No. 11

SEEKS TO STOP AMERICAN KNIGHTS

Russell Company Claims Exclusive Rights in Canada and Prepares to Act—Peculiar Situation in Prospect.

In due course the slide valve engine probably will find its way into the courts and provide food for patent lawyers, in fact, the first indication of the sort already has appeared and though the validity of a patent is not the issue the scope of a license granted under the Knight patent is the point involved and it may prove one requiring judicial determination.

At any rate, the Russell Motor Car Co. of Toronto, holds a license under the Knight patent to manufacture and sell cars using the Knight engine in not only Canada but Australia, and it believes its scope is wide enough to prevent the importation into the Dominion, at least, of any of the three American cars—the Stearns, Columbia and Stoddard-Dayton—which recently acquired the right to make use of the now celebrated slide valve motor. Officials of the Russell company are understood to have obtained legal advice as to their rights in the premises and to be prepared to apply restraining measures when the first American-made Knight appears across the border. The probable developments, therefore, are fraught with interest.

Until about three months since the Russell Motor Car Co. was the Canada Cycle & Motor Co., under which title its Knight license was granted two years ago by the Daimler Motor Co., of England. It first used imported engines in its Russell car, but within the last twelve months it has installed in Toronto the necessary machinery for their manufacture. The Canada company maintains several branches in Australia, which explains its interest in that direction and why its license covers that territory also.

Of several stories affecting the Knight

engine, one that is but just gaining circulation is of a somewhat startling nature and is to the effect that although Charles Y. Knight, once of Chicago and now of London, appears as the sole inventor, one of his relatives residing in New England had more or less or more than less to do with the origination of the motor. Why the New England member of the family has not been heard from the story does not relate.

Parker Motor Makes an Assignment.

In order to protect all creditors the Parker Motor Co., of Hartford, Conn., on Friday last, 1st inst., made a voluntary assignment to John C. Wilson, of Portland, Conn., as a representative of the creditors. Wilson also is a director of the company, which was organized two years ago with a capital of \$100,000, and with Lewis D. Parker as president and treasurer and several well-known Hartford men as directors. It built a four-cylinder gasoline engine which acquired a good reputation, but encountered obstacles which it could not overcome. No estimate of assets and liabilities has been made public, but it is expected that creditors will receive 100 cents on the dollar.

Economy Truck in Receiver's Hands.

Following the filing of a petition in bankruptcy by three creditors on the 1st inst., Howard Hughes, of Chicago, was appointed receiver for the Economy Motor Car Co., of Joliet, Ill., of which W. R. Everett was president and which manufactured the Economy truck. No statement of assets or liabilities is yet obtainable, but as the company was known to be in straightened circumstances for several months its failure caused small surprise.

Warner Establishes Canadian Branch.

The Warner Instrument Co., of Beloit, Wis., has established a Canadian branch at 559 Yonge street, Toronto. It is in charge of Donald F. Johnston, who has represented the company in the Dominion for several years.

"HARVESTER TRUST" CHASTENED

Its Experiment of Mixing Motor Vehicles and Farm Machinery Proves Unhappy—Plans and Salesmen Upset.

From the time that it first leaked out that the great International Harvester Co. was to go into the making of automobiles and the selling of them through its 40,000 agents in the agricultural districts, there has been plenty of speculation and eager curiosity as to how the experiment was working out and as to how successfully the company might be operating among the farmers in comparison with automobile manufacturers who, while of longer experience in the making of cars, were not equipped with so immense a selling organization dealing directly with the rural communities. The Motor World is in a position to give the chief facts in the remarkable story of the strange position the Harvester company has found itself in, the story being one that shows that the best laid plans of industrial generals, like those of ordinary men, "gang oft a-glee."

Tempted by the possibilities presented in placing at least one machine per season through each of most of its 40,000 agents, the International Harvester Co. some three or four years ago set about the producing of a motor vehicle designed to fit what were assumed to be the farmers' needs. The buggy type machine was enjoying something of a boom at the time, as various manufacturers were offering machines of this class for the farmer. The International people were impressed with the arguments advanced in behalf of this type, and decided to make such a vehicle.

When the first lot had been placed with agents of the company, it soon became apparent that most of the farmers who regarded themselves as financially able to buy automobiles were also men of family, with sons who took the prerogative of

telling "the old man" what kind of automobile he should buy. To these youths the idea of a hybrid combination of old fashioned buggy with gasoline engine propulsion was not the thing at all. In effect their attitude was: "We want the biggest and reddest and fastest automobiles we can get for the money; and we don't want any danged motor buggies."

This being found to be a general condition, the Harvester people modified their plans of a huge production of motor buggies, and carried on the making of the new vehicles on only a moderate scale. With a view to meeting the evident "sporty" demand of the younger generation, negotiations were even carried on with one of the big producers of popular price touring cars and runabouts for a large share of the latter's output.

Subsequently it was thought that the situation could be met by the Harvester company's making a combination machine, on conventional lines but having a convertible body, so that the machine could be used for utility purposes and carrying service on week days but by a change of body could be made into a pleasure vehicle for evenings and Sundays. In due course of time these machines were placed in the hands of the more favored agents, but the results were again highly disappointing. The agents did not meet with the success that had been anticipated, and it was evident that the products of other automobile manufacturers were being sold right under their noses without their being able to stem the competition.

Meanwhile the sales figures for the Harvester company's principal products—agricultural machinery—were not increasing at the rate annually expected of them. This condition was not explicable by conditions of crops or business, but at last was traced directly to a lowered efficiency of that portion of the selling organization where the attempt was being made to carry along the automobiles with the regular offerings.

Thorough investigation revealed that amazingly evil effects had resulted from trying to make automobile salesmen out of men trained only in selling agricultural machinery. Figuratively speaking, one whiff of gasoline intoxicated an agricultural machinery salesman to such an extent that without being able to sell automobiles as they should be sold he was almost utterly spoiled for his regular work.

Although it is a virtual monopoly so far as concerns the general run of agricultural machinery, the "trust" long ago found that for the best results it could not successfully pursue a purely monopolistic course in the sales end, and to spur the salesmen to creative selling rather than mere order taking, it created artificial competition by maintaining subsidiary companies that in relation with one another are the hottest kind of rivals, with rival brands and types of

(Continued on page 768b)

WEST VIRGINIA LOSES A FACTORY

**Had Organized \$300,000 Company to Get It, but "Doings" in Ohio Intervened
—Two Receivers for Norwalk.**

Changing its name from the Auto Bug Co. and its product from motor buggies to conventional touring cars did not avail to save the Norwalk Motor Car Co., of Norwalk, O. It is now in the hands of a receiver, or two of them. Its last days were full of excitement and the crisis came at a moment when it appeared that a silver lining was beginning to show through the clouds.

Certain residents of Martinsburg, W. Va., had been induced to make an offer for the property and had gone so far as to organize and incorporate a \$300,000 company of the name The Norwalk Motor Car Co., and after a prolonged and embittered discussion the stockholders of the Ohio company voted by a narrow margin to accept the West Virginia offer. At this meeting it was brought out that the auditors' statement showed an excess of \$5,540 liabilities over assets.

J. P. Link, one of the dissenting stockholders, was not content with the decision of the majority, however, and the next day filed a petition against the Norwalk Motor Car Co. and its officers and directors, in which he asked for an accounting, for equitable relief and for the appointment of a receiver. A. E. Skadden and C. H. Glaser, who were president and secretary, respectively, of the Auto Bug Co., and who are directors of the Norwalk company, were singled out for special characterization in Link's petition. He alleges that they induced him and other citizens of Norwalk to part with subscriptions amounting to \$15,000, and that soon thereafter they formed the new corporation, the Norwalk Motor Car Co., which took over the assets of the Auto Bug Co., whose liabilities at that time were greater than its assets.

In response to Link's petition, H. L. Stewart was appointed receiver by the State court. On the following day, August 23, A. J. Schur, of Cleveland, also was appointed receiver, but by the Federal court, and as a result of the petition in bankruptcy filed by the Diamond Rubber Co. of New York, the Pennsylvania Rubber & Supply Co., of Cleveland, and the Cross-Gilcroft Advertising Co., also of the same city.

Cathcart Wants Mortgage Set Aside.

Claiming that they are trying fraudulently to evade the payment of a patent suit judgment of \$300, Frank H. Cathcart has brought suit against John L. Kuser and the Motor Car Specialty Co., of Trenton, N. J., of which Kuser is vice president, asking that an alleged fraudulent chattel mort-

gage for \$25,000 on the company's property held by Kuser be set aside and that the chattels of the company be sold to satisfy Cathcart's judgment. Cathcart recovered judgment last July under an agreement by which the company was to pay him for a patent. He granted the defendant several extensions in which to pay, and finally was compelled to levy on the company's property. The Sheriff found everything protected by the mortgage, which Cathcart claims was executed two days before he brought suit and was not recorded until three months later, and which he seeks to have set aside.

Lieutenant-Governor a Henry Director.

To succeed W. L. Simonton, of Chicago, Michigan's Lieutenant Governor, John Q. Ross, of Muskegon, was elected a director of the Henry Motor Car Co. at the annual meeting of the company held in that city last week. The other directors elected are C. F. Latimer, Chicago; A. E. DeMange, Bloomington, Ill.; J. J. Maloney, Chicago; John H. Moore, Muskegon; J. W. Fulton, Chicago, and A. R. Palmer, Muskegon. The directors in turn re-elected all of the old officers, as follows: President, A. R. Palmer, Muskegon; vice-president, C. F. Latimer, Chicago; secretary, P. H. DeMange, Chicago; treasurer, C. H. Latimer, Muskegon; assistant treasurer, John H. Moore, Muskegon.

Keats Alleges Unjust Railroad Rates.

A complaint has been filed with the Interstate Commerce Commission against the Oregon-Washington Railroad & Navigation Co. et al., by the H. L. Keats Auto Co., of Portland, Ore., in which it is asserted that the rate of \$7 per 100 pounds on automobiles shipped from New York City to Portland is unreasonable, unjust and exorbitant. It is further alleged that a just and reasonable rate would be not to exceed \$4.50 per 100 pounds, and they ask for an order stipulating that rate to be applied to future shipments. Reparation is also asked for.

Trade Association Formed in Calgary.

Some 15 dealers in Calgary, Alta., Can., have organized the Calgary Motor Trades Association, which will affiliate with the national organization which now is in process of formation. The officers of the Calgary association are: S. Chapin, president; B. Cockerton, first vice-president; F. R. Harriss, second vice-president; F. L. Irving, secretary-treasurer.

Schurmeier Assets Under Red Flag.

The public sale of the assets of the bankrupt Schurmeier Motor Car Co., which undertook to build trucks in St. Paul, Minn., has been set for September 27th. The company filed a voluntary petition in bankruptcy on August 1st last, admitting liabilities amounting to \$51,899 and assets of \$33,288.

EXPORT TRADE IS SPREADING OUT

**Record for July Discloses Stronger Trends
Toward Southern and Far Eastern
Markets—Lower Average Values.**

The long continued rise of American exports of automobiles, which has been so pronounced during the past twelve months, still continues, although the gains are not as great proportionately as heretofore. During the month of July, 1911, 1,025 cars were exported, valued at \$1,104,807, as compared with 764 cars worth \$1,034,483 during the same month of 1910. Parts to the value of \$255,282 were exported during July, as against \$189,812 in July of the preceding year.

Study of the report shows a general shifting of the field towards Asia, Oceania and South America, and the prevalence of low-priced cars in the shipments. While in July, 1910, the average value of exported cars was \$1,354, this sum dropped to \$1,077 in the same month of 1911. The chief interest of the report, however, centers in the big drop registered by Canada, Mexico and Great Britain. These three countries for many months past have proven the best customers for American-made automobiles, increasing their monthly purchases in leaps and bounds. During July, 1911, however, their purchases declined greatly, while those of British Oceania, Asia, South America and Other Countries showed considerable gains. Six of the twelve geographical divisions registered losses, which were outweighed by gains in the other six divisions, resulting in a net gain of six per cent. in the total exports.

The figures for the seven months ending July 31, 1911, clearly show the gradual shifting of the market towards Asia, Oceania, and South America, instead of being largely confined to Canada and Great Britain. While shipments to the latter two countries showed only slight gains, amounting to less than 10 per cent., those to South America and British Oceania increased by 180 and 340 per cent., respectively. The report in detail:

	July		Seven months ending July—		
	1910	1911	1909	1910	1911
Automobiles and parts of—					
Automobiles	\$1,034,483	\$1,104,807	\$4,550,019	\$7,369,486	\$9,194,564
Parts of (except tires).....	189,812	255,282	425,870	1,272,058	1,901,707
Exported to—					
United Kingdom	a309,421	219,153	a1,508,846	a2,081,977	1,653,095
France	a60,038	45,544	a601,071	a598,038	326,800
Germany	a58,420	14,357	a139,788	a235,438	91,283
Italy	a14,296	20,508	a214,345	a340,119	169,914
Other Europe	a87,639	70,522	a243,881	a524,375	492,227
Canada	a465,920	365,989	a1,439,930	a3,490,714	3,925,265
Mexico	a64,864	18,285	a272,722	a361,102	258,064
West Indies and Bermuda.....	a14,153	21,454	a175,448	a247,345	210,432
South America	a33,602	69,105	a95,722	a226,208	604,229
British Oceania	a62,842	156,951	a106,797	a194,283	858,196
Asia and other Oceania.....	a36,452	75,106	a55,691	a234,155	428,110
Other countries	a16,648	27,833	a61,648	a107,790	176,045
Total	\$1,224,295	\$1,360,089	\$4,975,889	\$8,641,544	\$11,096,271

(a)—These figures include both "automobiles" and "parts of."

Changes Among Prominent Tradesmen.

Bert Morley, who formerly was with the American Distributing Co., of Detroit and Jackson, Mich., has been appointed sales manager of the Kelsey Wheel Co., of Detroit, which has let contracts for the erection of a \$50,000 addition to its plant. In addition to making wheels and standard types of rims, the Kelsey company now is producing the Booth and Detroit demountables.

I. G. Berryman, previously superintendent of the Marion Motor Car Co., of Indianapolis, has been made general manager of the Wabash Gear Works, of Terre Haute, Ind. In addition to producing transmissions, clutches, shifting levers, etc., the Terre Haute concern is furnishing material and making up hubs ready for the use of wheel manufacturers.

Morton H. Luce, manager of the Velie Motor Vehicle Co.'s Boston branch, has been transferred to the company's Chicago establishment, of which he assumes the management. The Boston berth will be filled by Harold D. Bornstein, who was Luce's chief assistant.

R. P. Henderson, for five years sales manager of the Parry Buggy Co., of Indianapolis, has been elected vice-president of the Henderson Motor Sales Co. of that city, which markets the output of Cole cars. R. P. is a brother of Charles P. Henderson, general manager of the Henderson company, and has had a financial interest in it for some time.

Detroit Office for Standard Welding.

The Standard Welding Co., of Cleveland, Ohio, is this week establishing a branch office in Detroit to permit of direct representation in the state of Michigan. The office will be located in the Ford Building and will be in charge of C. E. Miller.

Penn Plans Plant in Sharon.

The Penn Motor Co., of Pittsburgh, Pa., has indicated its intention of building a plant in Sharon, Pa., for the manufacture of Penn "30" cars. The capitalization of the concern will be made \$250,000 to take care of the building of a new factory capable of large production.

SHRINKAGE OF IMPORTS CONTINUES

But Decline During July Not as Heavy as Usual—Italy Loses Most Ground While Germany Gains 70 Per Cent.

July, 1911, was not such a bad month for automobile importers as were some other months, inasmuch as during that period 80 cars, valued at \$175,741, were brought to this country, as compared with 86 cars, valued at \$180,935, during the same period of last year. The shrinkage was due chiefly to the great loss sustained by France and Italy, which, however, was practically balanced by increases in imports from Germany and the division of Other Countries. Particularly notable in the figures giving the trade with Italy is the extreme drop in the average value of the cars. This decreased from \$2,300 in July, 1910, to \$1,457 in the same month of 1911, a loss of fully 36 per cent.

Italy was the heaviest loser, both actually and proportionally, its sales to this country having decreased from \$35,039 to \$14,578, equal to a loss of 58 per cent. France, the next heaviest loser, sent \$56,142 worth of cars during July, 1911, as against \$74,098 worth in the same month of last year. Germany increased its quota from 11 cars, valued at \$19,369, to 14 cars, valued at \$33,080, a gain of over 70 per cent. in total values and of \$602 (or 34 per cent.) in the average value of each car. The division Other Countries sent \$50,472 worth of automobiles, as compared with \$23,332 in July, 1910, the average value of the imported cars from this division remaining the same as last year. Parts to the amount of \$21,710 were imported, which shows a loss of 59 per cent. when compared with the \$53,438 worth imported during July, 1910.

American Tires Still Gaining Abroad.

Automobile tires to the value of \$218,883 were exported from this country during July, 1911, as compared with \$146,080 during the same month of the preceding year, a gain of 49 per cent. Other tires to the value of \$30,455 were exported, as against \$56,096 worth in July, 1910. For the seven months ending July, 1911, the figures for automobile and other tires were \$1,464,060 and \$337,130, respectively. No corresponding figures for the same period of 1910 are available, as the Government did not list tires separately previous to July 1, 1910.

Splitdorf Opens Branch in Kansas City.

C. F. Splitdorf has established a branch in Kansas City at 1823 Grand avenue. It will be in charge of E. A. Kelley, who previously managed the Splitdorf branch in San Francisco, and will carry a complete stock of Splitdorf magnetos and other Splitdorf productions.



San Francisco, Cal.—Keaton Vulcanizing Works, under California laws, with \$50,000 capital; to manufacture a non-skid tread under patent rights.

Rockford, Ill.—Rockford Truck and Garage Co., under Illinois laws, with \$10,000 capital; to maintain a garage and deal in automobiles and accessories. Corporators—T. D. Reber, E. J. Weil.

Malden, Mass.—Irving Garage & Repair Co., under Massachusetts laws, with \$10,000 capital; to deal in automobiles and maintain and operate a garage. Corporators—Stephen K. Bender, Stanley A. Cash.

Akron, Ohio.—Standard Tire Protector Co., under Ohio laws, with \$50,000 capital; to manufacture and deal in tires. Corporators—H. N. Coulter, O. J. Bohlander, H. O. Barber, D. J. Koonce, H. A. Lane.

Muskogee, Okla.—Oklahoma Motor Wagon Co., under Oklahoma laws, with \$10,000 capital; to manufacture and deal in motor vehicles. Corporators—C. T. Chenevert, Chris M. Bradley, F. E. Fancher.

Detroit, Mich.—Auto Lock & Specialty Co., under Michigan laws, with \$25,000 capital; to manufacture automobile accessories and specialties. Corporators—John W. Hubbard, Thomas E. Ahern, F. C. Stick.

St. Louis, Mo.—The Electric Motor Car Co., under Missouri laws, with \$10,000 capital; to deal in automobiles and supplies. Corporators—Noble H. Davis, 398 shares; Arthur E. Keller and A. J. Davis, one share each.

Indianapolis, Ind.—Morton Place Automobile Co., under Indiana laws, with \$10,000 capital; to deal in automobiles and other motor vehicles. Corporators—Mary Cheney, Maybelle E. Hutchinson, I. A. Pease.

Albany, N. Y.—Mohawk Valley Automobile Co., under New York laws, with \$500 capital; to deal in automobiles and operate a garage. Corporators—William E. Milbank, Agnes C. Waldron, Frank S. Weiss.

Detroit, Mich.—American Tire Protector Co., under New Jersey laws, with \$1,000,000 capital; to manufacture appliances for automobile and other tires. Corporators—R. L. Watson, R. St. John, J. P. Donahue, all of Detroit.

Hinton, Ohio.—Hinton Garage and Supply Co., under Ohio laws, with \$5,000 capital; to deal in automobiles and maintain a garage. Corporators—L. W. Baylor, W. C. Hoobs, W. H. Garnett, F. R. Puckett, Minnie Hoobs.

Indianapolis, Ind.—Mack's Tire Filling

Co., under Indiana laws, with \$6,000 capital; to repair automobiles and other vehicles and deal in motor supplies and tires. Corporators—Edward R. Donnell, C. A. McCordle, Charles Luhring.

Indianapolis, Ind.—Auto Lighting & Electric Co., under Indiana laws, with \$3,000 capital; to manufacture gasoline and electric lights for automobiles and other



United States Tire Co.'s New Office Building Now Being Erected at Broadway and 58th Street, New York City

vehicles. Corporators—G. S. Monfort, C. R. Brown, F. C. Parker.

Kittanning, Pa.—Kittanning Motor & Transfer Co., under Pennsylvania laws, with \$5,000 capital; to operate a motor truck and transfer service. Corporators—G. H. Burns, D. L. Shaffer, J. S. Claypool, Roy M. Cox, D. E. Acland.

New York City, N. Y.—Thompson Engine Starter Co., under New York laws, with \$300,000 capital; to manufacture all kinds of machinery. Corporators—W. M. Kingsley, G. F. Scott, F. I. Eldridge, and others, all of New York City.

Martinsburg, W. Va.—The Norwalk Motor Car Co., under West Virginia laws, with

\$300,000 capital; to manufacture motor vehicles. Corporators—F. A. Minor, S. P. Hopkins, H. L. Alexander, T. W. Martin, G. W. McKown, L. H. Ware.

Youngstown, Ohio.—E. A. Wick Rubber Co., under Ohio laws, with \$3,000 capital; to deal in rubber tires for automobiles and motorcycles. Corporators—Eldridge Wick, Dudley R. Kennedy, Curtis A. Manchester, Agnes C. Hamilton, L. A. Manchester.

Pittsburg, Pa.—Standard Steel Tank & Mfg. Co., under Delaware laws, with \$100,000 capital; to manufacture tanks and other appliances for motor vehicles and other purposes. Corporators—J. L. Kountz, F. M. Strecker, M. J. Dain, all of Pittsburg, Pa.

St. Louis, Mo.—St. Louis Automobile Sales Co., under Missouri laws, with \$5,000 capital; to deal in automobiles and other motor vehicles. Corporators—Mrs. Jennie W. Donnelly, 47 shares; Denmark Donnelly, two shares; Maurice Schoenfeld, one share.

Hackensack, N. J.—American Automobile Co. of Philadelphia, under New Jersey laws, with \$50,000 capital; to manufacture and deal in automobiles and other motor vehicles. Corporators—R. D. Earle, G. M. Brewster, J. R. Ramsey, W. J. Wright, all of Hackensack.

Henderson, Ky.—Corbitt Automobile Co. of Henderson, under South Carolina laws, with \$250,000 capital; to manufacture, sell and deal in automobiles and other motor vehicles. Corporators—R. J. Corbitt, D. Y. Cooper, J. B. Owen, J. H. Bridges, A. C. Zollicoffer, S. T. Peace, M. W. Teachey, W. A. Hunt, A. A. Zollicoffer.

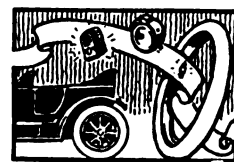
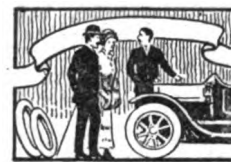
Donaldsonville, La.—Donaldsonville Co. Ltd., under Louisiana laws, with \$10,000 capital; to manufacture and deal in automobiles and other motor vehicles. Corporators—K. A. Aucoin, Dr. S. Moore, Dr. V. Painchaud, Dr. Henry LeBlanc, P. H. Gilbert, A. L. Shaw, A. A. Sarradet, A. Schroeder, Adolphe Netter, Charles H. Landry, Dr. E. K. Sims, A. Bloomenstil.

Recent Losses by Fire.

Jacksonville, Fla.—Eureka Garage, East Union street, totally destroyed. Loss heavy.

Remsenburg, L. I.—H. H. Joyce's garage and one automobile burned. Caused by lightning. Loss, \$6,000.

Plaquemine, La.—John Wilbert's garage on Main street and two automobiles, three buggies and one wagon burned. Loss on automobiles covered by insurance.



H. Burger, one of the partners of the Burger & Losser garage at Jackson, Mich., has sold his interest to Clifford Rhodes, a dealer in woven wire fencing. Rhodes took immediate possession.

The Long-Henderson Co., 226 Peachtree street, Atlanta, Ga., has changed its name to Cole Motor Co., of Georgia. As the name serves to indicate, Cole cars will be handled exclusively hereafter.

Benoist & Aull, dealers in supplies and pleasure cars, at St. Louis, Mo., have added commercial vehicles to their other interests. They will handle the Commer truck in the Missouri territory.

Charles A. Gover and William H. Klein have purchased the Union Garage on West Washtena street, Lansing, Mich. They intend to establish a taxicab service, in addition to doing general repair work.

H. A. Mason has purchased a half interest in the Clear Lake Auto Co., and the Forest City Auto Co., from J. S. Hanson, formerly sole owner. Mason will assume charge of the two companies, which will be continued under the old styles.

George H. Beyer has bought the property on Essex street, near Prospect avenue, Hackensack, N. J., and is building a garage and repair shop thereon. He will handle Brush and Penn "30" cars and Victor motor trucks in Bergen and Passaic counties.

Under the style the Rockford Truck & Garage Co., a new company has been organized at Rockford, Ill., with a capital of \$10,000, and T. D. Reber as president and E. J. Weil as general manager. The headquarters of the new concern will be at 814 South Main street.

H. B. Groves, manager of the United Motor Des Moines Co., has resigned his position. He is chief stockholder of the Inter-State Auto & Supply Co., and his duties in connection with the latter caused him to relinquish the management of the United Motors Co.'s branch.

Knight S. Jordan, son of David Starr Jordan, of Stanford University, has gone into the automobile business and opened salesrooms at Palo Alto, Cal., in partnership with W. Walters. The firm will be known as the Jordan & Walters Garage and will handle E-M-F cars.

Albert Kratky, who for several years conducted a garage and repair shop at the corner of Washington avenue and Eleventh street, Cairo, Ill., has sold his business to Horsford & Roberts, who conduct a garage at 810 Commercial avenue. Kratky intends to open a new garage in St. Louis, Mo.

C. E. Dunn has purchased an interest in

the Frogner Auto Co., which hitherto existed as a co-partnership between G. A. Frogner and E. M. Williams and operated a garage at Shawano, Wis. The incorporated name is the same as the old name, while the capital stock has been fixed at \$5,000.

E. C. Johnson, for several years identified with White interests in the Quaker City, has purchased the business of the late Prescott Adamson, including the agency for



United States Motor's New Philadelphia Store

Reo automobiles. He will operate under the style the E. C. Johnson Co., with headquarters at Broad and Spring Garden streets, Philadelphia, Pa.

The Bayless Motor Car Co., of Lexington, Ky., has changed hands, a new company having been formed to take over the entire business. Dr. Hugh L. McLean is president, C. M. Stratton, vice-president, and J. R. Dorman, secretary, of the new company, which will operate under the same name as the former concern.

Miss Eva Greenstein, for some years in the employment of the Fawkes Auto Co., Arthur Murphy, another employe of the same concern, and E. R. Corcoran, have formed the Motor Car Repair & Equipment Co., with headquarters at 208 Washington avenue north, Duluth, Minn. They will sell Oliver trucks and supplies.

Simultaneously with moving from 116 West Water street to 118 North Edwards street, the Kalamazoo (Mich.) Motor Co.

has changed its name to Kalamazoo Auto Sales Co. The company also has discontinued its garage business and hereafter will sell Hudson cars exclusively. Albert E. Rose is president of the company.

Owing to the recent extension of their business, so as to include several other makes of cars besides the White line, the White Motor Car Co., of Grand Rapids, Mich., has changed its name to Stratton & Woodcock Auto Co. The company has its headquarters at 118-120 Island street, and a garage and repair shop in the Becker Auto Co.'s building.

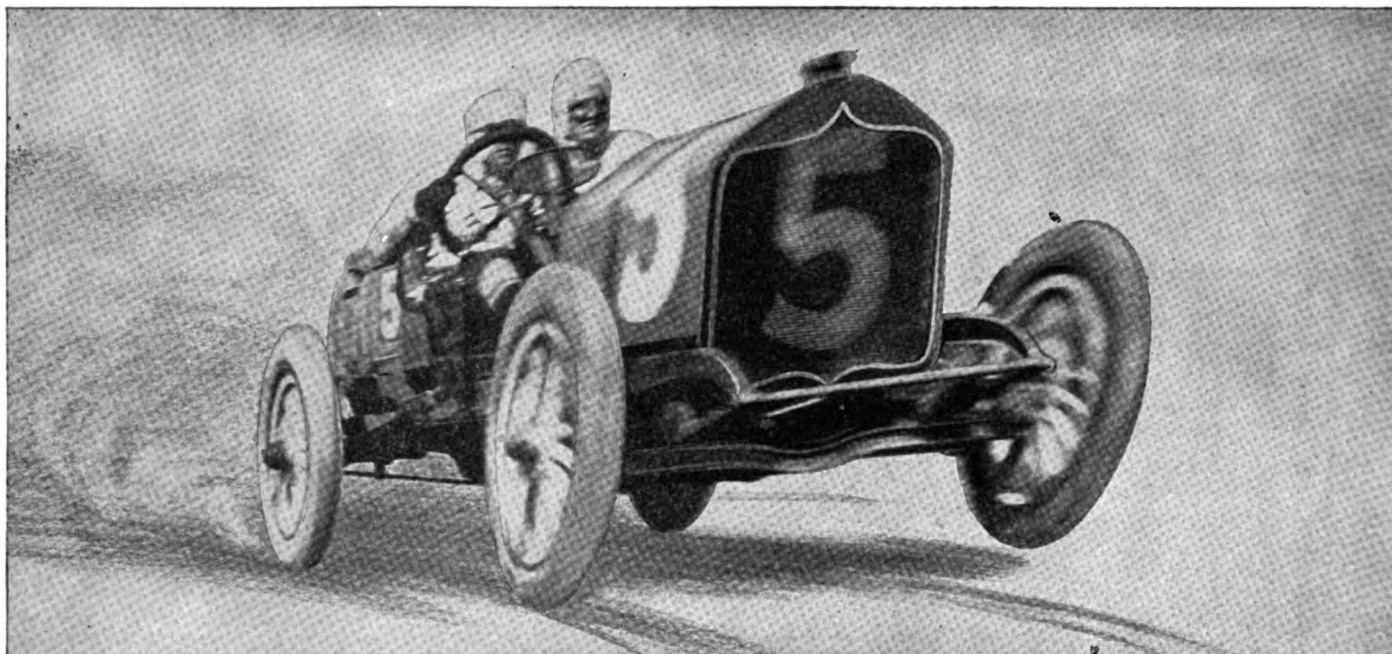
The Rambler Garage & Supply Co., on Broadway, Milwaukee, Wis., which has been conducting a garage and repair shop, as well as an accessories and supply store, has discontinued the sundries business and hereafter will devote its energies to the sale of Rambler cars exclusively. The big supplies department will be converted into a service department.

Harry J. Mich, who for twelve years has been connected with various automobile concerns in Minneapolis, Minn., at last has decided to go into business on his own account and under his own name. He has opened a garage and salesroom at 1401 Hennepin avenue, where the Maxfield Automobile Co. formerly was located. He will sell Knox and Franklin cars.

Stephen R. Hollen has been appointed receiver for Gilchrist, Peters & Burchart, veteran automobile dealers at Cincinnati, Ohio. Both Peters and Burchart died recently and the receivership was brought about by an application of the estate of Charles M. Peters, one of the partners. The assets are appraised at \$3,924.32, while its liabilities amount to \$3,829.27.

Consolidation has been effected between the Albertson Motor Car Co., of 1527 Grand avenue, and the Boyd Automobile Co., of 3100 Main street, Kansas City, Mo., under the style the Albertson Motor Car Co., with headquarters at the Grand avenue salesrooms. The company will handle Hudson and Marmon cars as general agents, and Haynes cars in Kansas City only.

A. E. Thompson has purchased an interest in the McArthur-Zollars Motor Co., of Minneapolis, Minn., and has assumed charge of the sales department. The company henceforth will be styled the McArthur-Zollars-Thompson Motor Co., with the letters "M-Z-T" entered as trademark. The company will handle the Everitt and Krit gasoline pleasure cars, the Babcock electric and the Veerac truck.



National 40 FIRST!

Elgin Stock Chassis Road Races

August 25 and 26, 1911, Elgin, Illinois

In the most gruelling contest of the year this thoroughbred car again demonstrated its superior stamina and reliability.

Zengel, in his stock National 40 (certified under Reg. No. 311), won first place in the Elgin National Trophy Race Stock Chassis 600 cu. in. and under, going 305.03 miles in 275 minutes and 39.08 seconds. The National 40 has 447 cubic inches piston displacement. It defeated five cars that had more than 100 cubic inches greater displacement, and six that sell for more than \$2,000 above the price of a National. The stock National averaged 66.4 miles per hour, the fastest time ever made over the Elgin course, and breaking the record by 3.92 miles per hour, established last year by a \$4,700 car.

Herr and Merz, both in stock National 40s (certified under Reg. No. 311), won first and second in the Illinois Trophy Race. Herr went the entire distance at the savage pace of 65.66 miles per hour—203.35 miles in 185 minutes 55.18 seconds. Merz, in his stock National, finished second, 9.65 seconds behind his team-mate, his time being 186 minutes 4.83 seconds. **Both cars finished without a stop.**

This wonderful performance eclipses the phenomenal record of the stock National 40s entered in this same race one year ago, when Livingstone, at 60.6 miles per hour, won this same race without a stop.

Over 711 Miles at Over 65 Miles Per Hour Without a Tire Change

Three cars, in the hands of three different drivers, traveling at sustained high speed, averaging 65.9 miles per hour, over a destructive road course with a stop for tires, is the most conclusive demonstration of tire economy, perfect balance and correct weight distribution in the history of motor car racing. The stock National you buy has the same well balanced chassis.

STOCK CHAMPION

Not merely these, the most important stock chassis contests of the year, but in every event where America's and Europe's foremost stock cars have contested, the National 40 has been uniformly victorious. It is the **biggest stock car winner** of the year.

The National 40 you buy is an exact counterpart of the stock National 40 we race. It has the same reliable motor that in contest gives speed and in your hands absolute dependability, complete independence of road conditions or hills. The same design and materials that endure unharmed the terrific strain of high speed, mean long and unbroken service in your hands. The same well balanced chassis that enables the National 40 to finish without a tire change means slight tire expense in everyday use. For the very reason that the stock National 40 wins, it is the most satisfactory car in your hands.

Regardless of price, power or class, the National has demonstrated its supremacy.

\$3,500
Speedway Roadster
\$2,600
Foredoor Touring

National Motor Vehicle Company
1007 East 22nd Street
INDIANAPOLIS, INDIANA



PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

Joseph Goodman, President. R. G. Betts, Treasurer.
F. W. Roche, Secretary

154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2653 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) . . . 10 Cents
Foreign and Canadian Subscriptions . . . \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 640.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, SEPTEMBER 7, 1911.

Innovation and Standardization.

In the light of the sage reiterations of no more than twelve months ago that the era of standardization had been reached, the disclosures of the present summer and the promised disclosures of the coming fall and winter cannot be viewed otherwise than as startling. Safe to say not in three or four years has there been as much new material for discussion among designers and the motorwise as there is at the present time, while indications are not lacking that the crowded show season of the new year will be replete with novelties in construction such as have not been witnessed for many years. The fact of the matter is that having reached a stepping stone, as it were, in the current designs that were thought to have "come to stay" the more radical element in the industry is now ready to advance to the next halting place to await the coming of the rear guard.

Engineers have always understood that

certain improvements in engine, transmission and chassis construction were available. Certain manufacturers even have gone the length of developing improved designs one or two years in advance of their introduction to the public, merely to gain the necessary knowledge of their advantages and shortcomings and with a possible secondary purpose of being prepared for the turn of events. It is partly on this account, indeed, that sudden developments in one quarter so soon are followed by corresponding developments in an entirely different one, thus giving the impression of a spontaneous upheaval of practical design. The truth of the matter is that there always is a deal of activity in progress behind the closed doors of the factory experimental shop.

The explanation for the seemingly unexpected change of policy in the manufacturing side of the industry that sooner or later will be demanded is not as far below the surface as it may seem. "Manufacturing reasons" constitute the only answer that can or need be given. To support the high experimental and production costs of new designs and the high selling figures that may be involved in introducing novel features a combination of circumstances is required that is brought about only by closest competition and a recognized need for market arousal. So long as a product of staple design will fulfil every expectation of the purchaser and every legitimate demand as well, it would be sheer prodigality to force the market with designs that were "ahead of their time."

So now that the time is ripe, there are slide valve and rotary valve motors, new oiling systems, twin spark ignition, improved carburation, power-driven air pumps, electric lights, engine starters, left hand drive and central control, radical improvements in limousine and coupe bodies and a wealth of equipment hitherto unthought of even in the eager buyer's wildest dreams. What of the vaunted movement for standardization? It is written in every line of the new progress. Only by the widest misapplication of the term was the standardized automobile thought to mean a duplicate of some other automobile of different make. The standardization of minor parts such as may be rendered uniform with economy and without loss of individuality is going bravely forward. The "standardized car" is a very present and useful reality. New standards are being

created, however, and others will follow. The real meaning of standardization was not generally understood a year ago, that is all, nor is it likely that it will be for some time to come.

The Peril of "Cutting Corners."

There are people of a certain class who always run "against traffic." If it be on the sidewalk they steadfastly keep to the left side regardless of the number of shoulders they bump and regardless of the extra effort entailed. If it be on the highway they are equally regardless of what common and legal parlance agree in calling the rule of the road. Sometimes the obsession results from heedlessness, sometimes from recklessness and sometimes from native obstinacy. On the sidewalk the effect is merely annoying. On the road, especially where motor cars are involved, the consequences are apt to be serious.

But of all the tribe of drivers who zig-zag about the road, disregard the rules in general and evince no respect for the inalienable though seldom enforceable rights of the other fellow, perhaps the most dangerous rascal is he who deliberately "cuts corners" and as deliberately seeks excuse for the practice. The worst of the habit is that it has some slight foundation, albeit one that countenances direct violation of the law in two important respects. As a disciple of road racing explains, "It is easier on the tires." And he succinctly explains:

"You must keep the orbit of your wheels the same throughout the turn. In making a turn to the left, for example, begin on the right side of the main road, taking the widest possible radius so as to cut the corner and land at the outside of the intersecting road. Thus by changing your direction only once and making as wide a sweep as the road will permit, you can get around without slackening speed and with a minimum of strain on your casings."

Which is true, very true, but evil counsel. Likewise it is cheaper to steal a loaf of bread than buy a sandwich. The rule of the road and the laws of most States demand that all traffic be kept to the right, save at the moment of passing other traffic that is moving in the same direction. Similarly it is written that no corner shall be taken save at reduced speed. The wisdom of the plan is made apparent in the success of the traffic controls of great cities. The dangers of its contravention are demonstrated with alarming frequency and

with growing frequency as motor traffic on the highways multiplies.

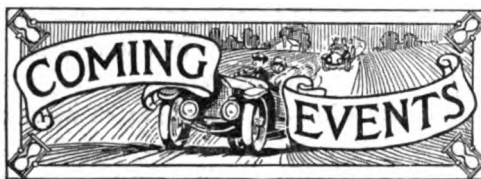
The idiot who struggles to reverse the movement of a turnstile door is merely funny, his brothers who persist in doggedly butting the crowd instead of keeping to their own side of the walk are annoying and hardly more. But the corner-cutting motorist and his blind half-brother Mr. Wrong-Side-of-the-Road are a menace in the land.

The Sales of Cars and of Trucks.

It was to be expected that it would not be sufficient for manufacturers to learn the art of building successful motor trucks in order to achieve the upbuilding of that branch of the industry; that they would have to learn also the art of selling them successfully appears a matter of course. Experience is fast teaching that there is as great a difference proportionately between marketing pleasure cars and business vehicles as there is between the respective methods of manufacturing them. Basically, manufacturing and merchandising methods are the same in principle in all lines of activity, but the effort to apply the same details of procedure in pleasure and commercial lines has proved expensive in more than one instance.

Difficult though it may have been to come to a realization that the elements of automobile design require a distinguishment from starting crank to muffler, according to the purpose of the vehicle, it has been even more difficult to conceive that the marketing of the two classes of vehicle required different methods. That lesson at length has been learned and well learned, too, by more than one producer. That it requires a special intelligence and special training to produce a good truck salesman is now well established. That a good truck salesman may not be equally successful as a salesman of pleasure cars likewise has proved to be the case occasionally—much to the surprise of the employer. It has been less surprising to learn that a successful pleasure car salesman could not be converted into an equally successful salesman of trucks by a mere change of title.

What has been even more difficult to master is the gospel of taking care of the customer. Without the inducements and encouragements of the pastime, which prove of big assistance in the administration of pleasure car sales business, the



Sept. 7-8, Philadelphia, Pa.—Philadelphia Auto Trade Association's racemeet.

Sept. 7-9, Hamline Track, Minn.—Minnesota State Automobile Association's racemeet.

Sept. 7-10, Buffalo, N. Y.—Reliability contest under auspices Automobile Club of Buffalo.

Sept. 9, Bologna, Italy—International road race for the Italian Grand Prix over the Bologna circuit.

Sept. 9, Hartford, Conn.—Connecticut Fair Association's racemeet.

Sept. 9, Port Jefferson, L. I.—Automobile Club of Port Jefferson's hill climb.

Sept. 9, Cincinnati, O.—Cincinnati Fern Bank Dam Association's road race.

Sept. 12-13, Grand Rapids, Mich.—Michigan State Automobile Association's racemeet.

Sept. 15, Knoxville, Tenn.—Track meet, Appalachian Exposition.

Sept. 16, Syracuse, N. Y.—National Circuit track meet, State Fair grounds.

Sept. 18-20, Chicago, Ill.—Reliability contest for motor trucks, under auspices of Chicago Motor Club.

Sept. 18-22, Detroit, Mich.—Automobile show in connection with the Michigan State Fair.

Sept. 19-23, Burlington, Vt.—Burlington Merchants' Protective Association's reliability run.

marketing of trucks is thrown back on a basis of pure value received for dollar paid, and the value received is measured, not in terms of the almighty dollar itself, but in terms of service. The disgruntled purchaser of a runabout or touring car frequently can be pacified with a few kind words and some slight accommodation of one sort or another; the dissatisfied purchaser of a truck is more than a dissatisfied purchaser, he is a business man who is afflicted with a non-paying investment. The distinction is important.

Here is the germ of new-born strength that lies within the commercial vehicle side of the industry at the present time: Manufacturers and dealers are beginning to comprehend that it is not sufficient to strive to make a satisfied customer after a sale has been made; that it is necessary to begin by making the right sort of a sale

Sept. 23, Lowell, Mass.—Road races under auspices of Lowell Automobile Club.

Sept. 23, Detroit, Mich.—State Automobile Association's racemeet.

Sept. 30-Oct. 7, Sydney, N. S. W.—International automobile exposition under auspices of Royal Agricultural Society.

Oct. 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers' Association's open air show.

Oct. 3-7, Danbury, Conn.—Track meet under auspices Danbury Agricultural Society.

October 7, Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

Oct. 9-13, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

Oct. 12-22, Berlin, Germany.—International automobile show in Exhibition Hall, Zoological Garden.

Oct. 13-14, Atlanta, Ga.—Racemeet under management H. C. George.

Oct. 14, Santa Monica, Cal.—Santa Monica road races under auspices of Santa Monica Motor Car Dealers' Association.

Oct. 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

Nov. 1, Waco, Texas—Racemeet under auspices Waco Automobile Club.

Nov. 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

Nov. 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

Nov. 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

in the first place. Experienced makers and dealers have reached the conclusion that it doesn't pay to sell an equipment that is not suited to the work for which it is intended. The result of such a course is bound to prove expensive and disastrous.

"Service" is a fetish that is apt to be misunderstood. Its broadest interpretation conveys not merely the idea of carrying out a generous maintenance program, it may involve little of actual maintenance or even of continual oversight. Real service begins when the purchaser is given an equipment that will do his work as it should be done; it ends with the dealer's assurance that the equipment is being employed wisely and economically and that it is not being abused. However the actual details of procedure may vary, it is service of this deep and thorough sort that is working the uplift of the industry.

MOROSS DAYS AT BRIGHTON BEACH

Two of Them, One a Real Big Day—Burman, Sheets, Hughes and Tower Bag Everything in Sight.

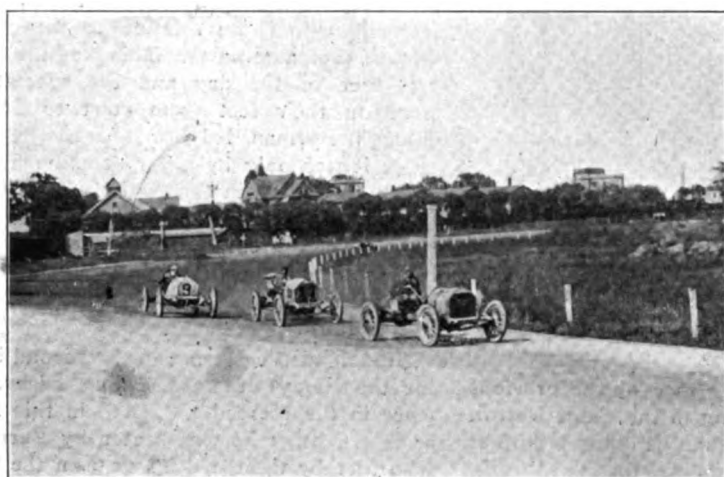
After a considerable period of comparative quiet, July 3rd and 4th being the dates when last a crowd gathered to witness a series of speed battles on the seaside track, the Brighton Beach (New York City) "motordrome" was the scene of two more of E. A. Moross's racemeets on Saturday and Monday afternoons, 2nd and 4th inst., and the size of the gathering of "fans" which was on hand paid tribute to the wis-

dom of the promoter in allowing two whole months to elapse between successive race dates.

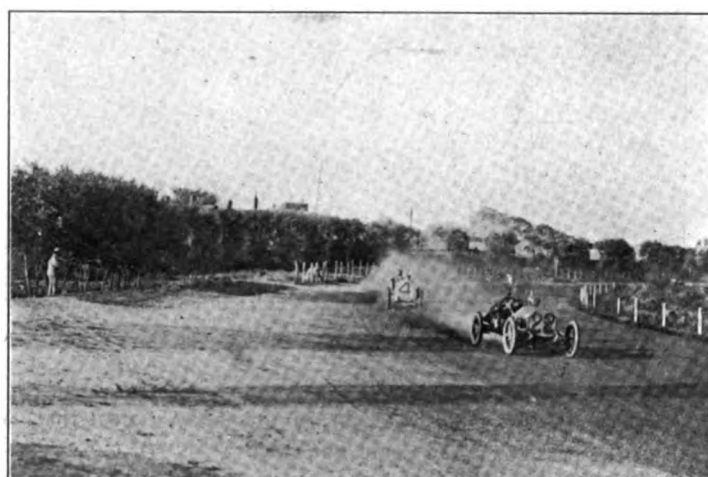
driving was none the less sensational, as he literally slid around the turns, and the crowds just could not remain seated. On Saturday he drove his big Benz twice around the mile oval in one minute and 37.89 seconds, which is considerably faster than De Palma drove when he established the then existing record of 1:40.55 at Syracuse recently. The new mile mark of 48.62 seconds he made on Monday on his second trial, his first one being clocked in 49.82, and though it was only one-tenth of a second better than his own mark of 48.72 seconds made on July 4th last, it was quite sufficient.

The parking spaces along the track and behind the grandstand on Saturday were in no danger of being taxed to their capacity

track late on Saturday, and it was not until the curtain had risen and the second event was well under way that what crowd there was made its appearance. Conforming to the usual method of procedure, the cars in the "baby" class were turned loose first, four of them lining up for a five miles sprint. The race early evolved into a procession, with Jack Towers in an E-M-F leading, and Geo. Ainslie (Penn "30"), Jack Craig (Paige-Detroit) and Armour Ferguson (Lancia) following. Once, in the second mile, Ainslie worked up almost on an equal footing with Towers, but was quickly outdistanced, and a little later Craig swung in ahead of the Penn "30" pilot, and they finished in that order in 5:55.36.



TOWERS (E-M-F) LEADING THE "LITTLE FELLOWS"



HUGHES (MERCER) BEATING BURMAN (BENZ) IN HANDICAP

dom of the promoter in allowing two whole months to elapse between successive race dates.

Metropolitan and out-of-town motorists were ripe for the meet and they came in droves. Like the last meet, it was spread over two days—though this time Sunday intervened—the first half of the program, or rather the first quarter of it if judged by the quality of the racing and the gate receipts, being completed on Saturday afternoon, and the remainder, which easily was three-quarters from the point of interest and attendance, being run off on Labor Day afternoon.

Though it almost was to be expected that some sort of a record, or "near" record, would be made—the Moross racing aggregation seldom if ever visits a town, no matter how small, without giving the local newspapers the chance to use some nice big display type on the front page telling about shattered records—it scarcely was expected that no less than two "sure enough" world's marks would go by the board. But that is just what happened. Robert Burman, the star performer of Moross's troupe, was the man who did the work, and though he had the whole track to himself and that element of visible contest which brought the spectators to their feet in the other events was missing, his

and the rails, lined two, and in some places three deep, on the succeeding day, were visible all afternoon. The really big crowd turned out on Monday. And it was a big one, too; a glance at the grandstand revealed nothing but a sea of faces, while over in the bleachers the jam of humanity was just as great.

The meet was not without accidents, though in neither of those which occurred was any one hurt beyond a bad shaking up. Both of them occurred during the second day's sport, Bert Foster, who had the mount on a Correja, being the first to thrill the crowds. He was out for practice before the racing had started, and after having made several fast laps his car skidded and overturned in the back stretch. Foster, who was riding alone, was thrown clear and was not badly hurt. The second accident came in the very last race on the program, and though it was by far the more spectacular of the two, resulted in even less injury to the occupants of the car than the other. It was Spencer Wishart with his Mercedes who this time brought the crowds to their feet as his big car swerved off the track on the grandstand turn, and after going through a light fence came to rest in a clump of bushes. A blown out tire was said to have caused the accident.

Most of the spectators got down to the

Of the five who were entered in a five miles race for cars in the 231-300 inch class but three faced the starter, and of these, Bert Foster, in a Correja, led to the beginning of the fourth mile, when Hughie Hughes, who had been loafing along in his Mercer, romped past him and won as he pleased. His time for the five circuits was 5:22.56, and J. M. Gray, Schacht pilot, was third, something like an eighth of a mile astern of the winner.

When H. Richter, in an Opel, lined up for the next race, which also was at five miles, for cars of from 301 to 450 inches displacement, Starter Wagner started an investigation of a box-like structure behind the driver's seat. The result was that Richter was asked to remove what appeared to be enough tools and other paraphernalia to stock a small sized garage. He took out some of the stuff, evidently with little relish, and then, in a fine huff, decided not to race at all and backed into the paddock. The race was started without him, and Fay Sheets, who drove a National, never was headed; Louis Disbrow, in a Benz this time and not the old familiar Pope-Hartford "Hummer," was second, and Harry Cobe, in his Indianapolis Jackson, brought up the rear. Sheets made the five laps in 4:51.80.

The ill humor into which Richter had

worked himself continued during the following event, a five miles race for cars of up to 600 inches displacement and with a minimum weight of 2,100 pounds, and as Disbrow likewise failed to put in appearance, Sheets (National) and Cobe (Jack-

in less than a minute his chances, good up to that time, were lost. Burman's time for the 50 miles was 50:07.13.

The five miles race for cars in the 161-230 inch class, with which the second day's program was started, turned out exactly

Hughes won quite easily in 5:35.10, and Gray, who drove a Schacht, was second.

Following his lowering of the one mile record for dirt tracks to 48.62, Burman came right back and at the wheel of the Opel won a five miles race for cars of from 301-450 inches displacement. It was just prior to the start of this race that the spectators were treated to quite a surprise. It was a sort of double-acting surprise, however, though few realized it till they read their morning papers the next day. It was announced that Oldfield—no less a person than Oldfield himself—would drive the Benz entry, and immediately there was a storm of applause. It was Oldfield, all right, only the public was not informed that it was not Berna, or, as he is more popularly styled, "Barney," but was Lee Oldfield, who is no relation to the other man of the same name. This was the first real race of the day and the spectators were on their feet from start to finish. Though Burman led for the whole distance it was only by a very small margin, and both Sheets, in the National, and Oldfield were within striking distance all the time. By a great burst of speed in the home stretch, however, Burman got over the wire a winner, with Oldfield second and Sheets third.

Oldfield also came out in the second heat for the Remy Brassard, taking Disbrow's place in the Mercedes, though in this race as in the other he was beaten by Burman, who thereby tightened his grip on the "\$75 per" that goes with the trophy. Kilpatrick



THERE WERE A FEW SPECTATORS PRESENT ON MONDAY—

son) fought it out, though it was not much of a fight. Sheets took the lead at the crack of the gun and Cobe could not catch him. Sheets was clocked in 5:27.67.

Burman beat Disbrow (Mercedes) and Kilpatrick (Hotchkiss) quite easily in the first heat for the Remy "meal ticket," his time for the three miles, which was the distance at which the race was run, being 2:57.05. Later Burman came out in the same Benz and won a five miles free-for-all handicap from scratch. Hughes in his Mercer was second from the 20 second mark, and Foster (Correja), who had 25 seconds, was third.

Aside from Burman's successful assaults on Father Time, the greatest interest centered around a 50 miles class E race for cars of less than 600 inches displacement and of a minimum weight of 2,100 pounds. Only four cars started, among them being the Opel, which made its first appearance in action, with Burman at the wheel. Of the others, Sheets in his blue National and Cobe with his Jackson, quit before the 20 mile mark was reached and left Hughes and Burman in possession of the field. From then on to the 37th mile it was a see-saw affair between these two, Hughes leading around the turns and Burman running away from him in the stretches. The situation was not without humor and the crowd laughed to see Hughes scud around the curves and overtake Burman in the low little Mercer, only to be left behind on the straightaways. Tire trouble put Hughes out in the 47th lap, and though he had a new tire on and was out on the track again

the same as the first race of the previous day, except that Craig in the Paige-Detroit showed more speed than he did in the other race and led Towers to the third mile. After that, however, Towers had things



LIKEWISE MORE THAN A FEW MOTOR CARS

his own way and won in 5:45.13; Ainslie (Penn "30") finished third. Similarly, a five miles race for cars in the next larger class was practically a repetition of the second number on Saturday's program, though owing to his accident in practice, Foster (Correja) was unable to start.

was third with his big red Hotchkiss smoking like a house on fire.

It was the universal verdict of the crowds in the grandstands that Burman was the hardest worked man in sight. After winning the second and final heat for the Remy Brassard, he simply hopped out of

his Benz and into his Opel and was ready for the gun in a ten miles race for cars of less than 600 inches displacement. But he had his work cut out for him in this race, as an added starter in the person of Spencer Wishart turned up. Wishart had with him the Mercedes with which he won fourth place in the 500 miles race at Indianapolis on Decoration Day, and the way he drove the car around the track made Burman open the Opel up very near to the limit. At any rate he drove a great deal faster than he did in previous races with the Opel, and the result was that Hughes in his Mercer was left far in the rear. But drive as he would Wishart was unable to catch Burman and the best he could do was to finish second. Burman's time was 9:42.30, and Hughes was third.

Following his victory in the 10 miles

It was during the last race that the only accident made in competition occurred, and though at first it appeared that Wishart and his boyish mechanic scarcely could have escaped as the heavy car ploughed down fences and small trees, they soon were seen on their feet waving their arms as an indication that they were unhurt. Later Wishart drove the car off under its own power.

The race itself was a five miles free-for-all handicap, and very nearly all the cars in the paddock lined up for the start. Owing to a protest, the handicap race on the previous day had been declared no race by the referee, and the prize money from that was added to afford a second and third prize. Burman, who started from scratch, rapidly overhauled all the others except three, though it is a question if he ever

Burman, Benz; second, Louis Disbrow, Mercedes; third, H. J. Kilpatrick, Hotchkiss. Time, 2:57.05.

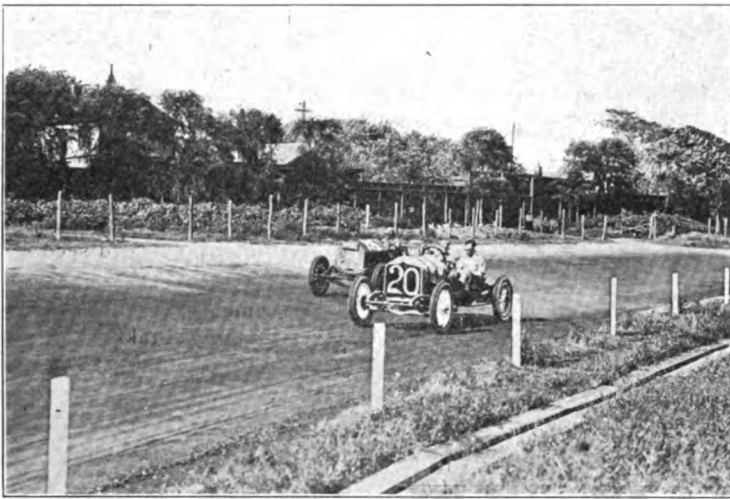
Five miles, class D, free-for-all handicap—Won by Robert Burman, Benz (scratch); second, Hughie Hughes, Mercer (20 seconds); third, Bert Foster, Correja (25 seconds). Time, 5:25.25.

Fifty miles, class E, under 600 inches displacement, minimum weight, 2,100 pounds—Won by Robert Burman, Opel; second, Hughie Hughes, Mercer. Time, 50:07.13.

Monday, Sept. 4th.

Five miles, class C, 161-230 inches displacement—Won by Jack Towers, E-M-F; second, Jack Craig, Paige-Detroit; third, Geo. Ainslie, Penn "30." Time, 5:45.13.

One mile time trial by Robert Burman (Benz). Time, 48.62.



SHEETS (NATIONAL) DEFEATING COBE (JACKSON)



TOWERS (E-M-F) AND CRAIG (PAIGE) IN FINE FINISH

race, Burman again came out in the Opel in the piece de resistance, a 50 miles race for cars in the 600 inch class, and though he beat Hughes the previous day at the same distance, the tables were turned, and after leading for 21 miles Burman was forced out with tire trouble. As the Opel car is not equipped with demountable rims, a tire could not be changed in time, and Burman withdrew. Sheets in the National started having trouble early in the race and had to retire to the paddock on four successive laps to make minor adjustments. Eventually he lost so much time that his chances of winning were remote, though he kept plugging along gamely.

Wishart had tire trouble at the beginning of the race and lost five laps. Two of these he made up, catching the leaders at the 13th and again at the 26th miles, but later he had more tire trouble and lost another lap. In the meantime Hughes had been driving steadily and had had no tire troubles, the result being that he then was in the lead by a comfortable margin, which lead he maintained up to the end. His time for the 50 miles was 49:56.06, and Wishart and Sheets were second and third, respectively.

would have caught Wishart at the rate he was going when he ran off the track. Hughes won, however, from the 35 second mark, and Jack Tower (E-M-F), who had 50 seconds, and Fay Sheets (National), with 30 seconds start, were second and third, respectively. The summary:

Saturday, Sept. 2nd.

Five miles, class C, 161-230 inches displacement—Won by Jack Towers, E-M-F; second, Jack Craig, Paige-Detroit; third, Geo. Ainslie, Penn "30." Time, 5:55.36.

Five miles, class C, 231-300 inches displacement—Won by Hughie Hughes, Mercer; second, Bert Foster, Correja; third, J. M. Gray, Schacht. Time, 5:22.56.

Two miles time trial by Robert Burman (Benz). Time, 1:37.89.

Five miles, class C, 301-450 inches displacement—Won by Fay Sheets, National; second, Louis Disbrow, Benz; third, Harry Cobe, Jackson. Time, 4:51.80.

Five miles, class E, under 600 inches displacement, minimum weight 2,100 pounds—Won by Fay Sheets, National; second, Harry Cobe, Jackson. Time, 5:27.67.

Three miles, class D, free-for-all, first heat for Remy Brassard—Won by Robert

Five miles, class C, 231-300 inches displacement—Won by Hughie Hughes, Mercer; second, J. M. Gray, Schacht. Time, 5:35.10.

Five miles, class E, 301-450 inches displacement, minimum weight, 1,800 pounds—Won by Robert Burman, Opel; second, Lee Oldfield, Benz; third, Fay Sheets, National. Time, 5:02.96.

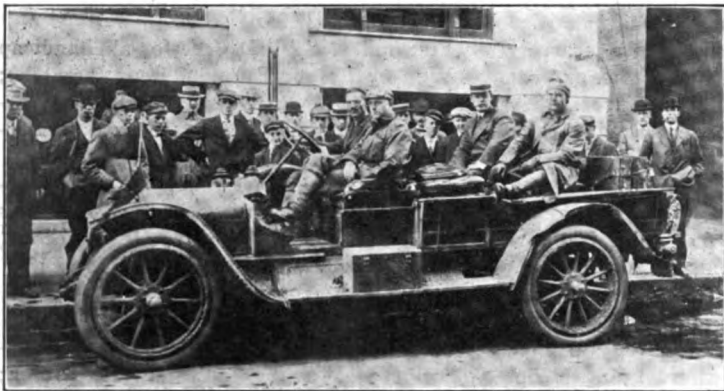
Three miles, class D, free-for-all, second heat for Remy Brassard—Won by Robert Burman, Benz; second, Lee Oldfield, Mercedes; third, H. J. Kilpatrick, Hotchkiss. Time, 2:50.90.

Ten miles, class E, under 600 inches displacement, minimum weight, 2,100 pounds—Won by Robert Burman, Opel; second, Spencer Wishart, Mercedes; third, Hughie Hughes, Mercer. Time, 9:42.30.

Fifty miles, class E, under 600 inches displacement, minimum weight, 2,100 pounds—Won by Hughie Hughes, Mercer; second, Spencer Wishart, Mercedes; third, Fay Sheets, National. Time, 49:56.06.

Five miles, class D, free-for-all handicap—Won by Hughie Hughes, Mercer (35 seconds); second, Jack Tower, E-M-F, (50 seconds); third, Fay Sheets, National (30 seconds). Time, 5:14.31.

MOTORISTS AND MOTOR VEHICLES ENGAGED IN PERFORMANCES REQUIRING RELIABILITY



Diamond Tire Artists on Tour—A crew of sign painters sent out by the Diamond Rubber Co. which just has finished a 12,000 mile trip by arriving at St. Paul, Minn.



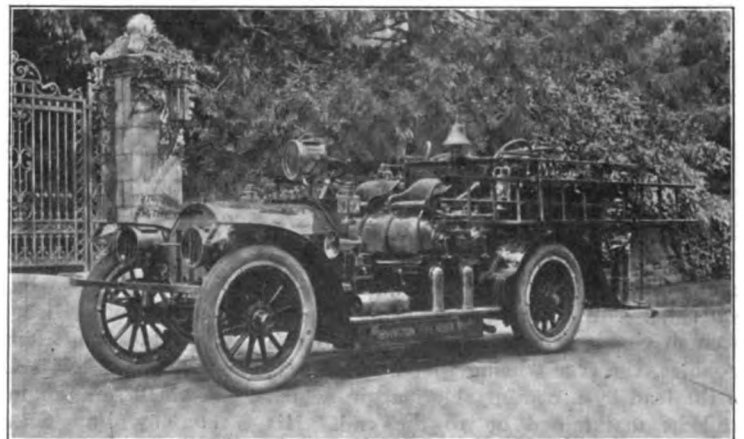
Contrasting the Old and the New—Ezra Meeker, whose prairie schooner "record" is 8,000 miles, and J. A. Wicke, whose 1910 Glidden Moline car has done 27,500 miles



An Iowan Moline Mobilization—Forty-three farmer-motorists have just completed a 100-miles "Sociability" run from Kalona, Ia., to Washington, Brighton, Richland and return. The caravan is illustrated at the Richland end of the route. The affair was inaugurated by Messrs. Loucke & Beehm, Moline agents at Kalona, and every car was a "Dreadnaught" Moline.



Fire-Fighting Minus the Romance View of a Rambler combination at speed which indicates that the old-time "thrill" is not lacking despite the absence of the plunging steeds.



Combination Apparatus for Irvington—The new Locomobile 40-horsepower combination chemical and hose wagon that has just been installed at Irvington-on-Hudson, N. Y.

THIRTEEN CROSSED THE SIERRAS

But Only Six Returned With Perfect Scores—Girl's Pa Compels Her to Withdraw at Lake Tahoe.

There is one day in each year that Tahoe Tavern, at Lake Tahoe, which is on the state line between California and Nevada, "perks up" in honor of motorists—the date which marks the arrival of Northern California automobile owners on their annual endurance contest from San Francisco to the tavern and return, which covers a distance of 520 miles. It is more of a sociability run than an endurance contest, however, because minor adjustments and repairs of the automobile, if made during running time, entail no penalties, the essential point being to reach controls on schedule time.

Thirteen motorists engaged in the 1911 run, which left Oakland, the official starting point, on the 26th ult., headed for the lake, and after contending with all sorts of road conditions for four days, six of the number checked in at the final control with perfect scores. They were: Stanley Gowne, American; Fred Gross, Buick; Claude McGee, Buick; Stanley Jonas, Flanders; A. S. Chisholm, Franklin, and H. L. Owesney, Winton. The Elmore, driven by B. Aurandt, and a Flanders, with Halsey Smith at the wheel, reached the Oakland control within the time limit, but both were penalized for being late at other points. Both men have lodged protests with the committee, however, and hope to have their slates wiped clean.

A. S. Chisholm, at the wheel of a Franklin, was the pilot. He started from San Francisco at 7 o'clock on the morning of the 24th ult. and was followed by the other contestants at three minute intervals, by way of ferry to Oakland, in the following order: Halsey Smith, Flanders; Miss Helen Weaver, Flanders; Stanley Gowne, American; Fred Gross, Buick; Stanley Jonas, Flanders; H. L. Owesney, Winton; B. Aurandt, Elmore; C. N. Hall, Lambert; A. S. Smith, Elmore; John A. Taylor, Franklin; H. Young, Winton.

The first day's control was at Auburn and some of the best roads in the state were traversed. Stockton was the noon control; from there to Sacramento and on to Auburn by way of the new Ben Ali boulevard, the motorists encountered no difficulties whatsoever. From Auburn to the lake, however, the road leads over the famous Sierra range, going over the old Summit route to Truckee, and the path is not wholly one of peace and pleasure. This part of the trip was a harder test of tires than of motors, for although there are many hills the inclines are neither steep nor long, but covered with sharp stones.

That there was no serious accident on the long trip is considered remarkable. The schedule over the mountains made it necessary for the contestants to keep their cars going at a lively pace all the time, and when overtaken by tire trouble the drivers had to force their motors to an unusually fast pace. Miss Weaver made a false turn and got twelve miles off the course. She however reached the Tavern within the time limit, but as her father, C. N. Weaver, general manager of the Studebaker Co. of California, would not permit her to make the return journey as a contestant, the Flanders she was driving was withdrawn.

On the return from Tahoe Tavern, C. N. Hall, driving a Lambert, was compelled to withdraw on account of a broken oil connection, and A. S. Smith withdrew the Elmore after having ten successive blowouts, which caused him to be late at controls. John A. Taylor, Franklin, and H. Young, Winton, also lost perfect scores on account of being late at controls, caused by blowouts. Halsey Smith, Flanders, was late in reaching Contra Costa, the noon control on the third day and failed to remain an hour, the time set for lunch. For this he was penalized, and he has made it the basis of protests, because in his opinion it was not necessary to remain the full hour. Aurandt's penalization was due to his failure to bring the Elmore into the Sacramento control on time, the third night. He was over 30 minutes late on account of an accident near Colfax. According to Aurandt he had about five minutes to reach Colfax and was going fast, when an automobile bound for Tahoe got on the wrong side of the road and forced him to run his car up an embankment to avoid a collision. As a result he broke a spring which he repaired after checking out of Colfax, which caused him to be late in reaching Sacramento. On this he bases his protest.

San Franciscan Tests City Ordinance.

In order to test the validity of a city ordinance requiring automobile owners to affix number plates to the front of their machines, Percy J. Walker, president of the California State Automobile Association, last week presented himself at San Francisco Police Headquarters and demanded to be taken into custody for violation of the ordinance. He was released under nominal bail. It is not contended by San Francisco motorists that the ordinance is not a good one, but it is their opinion that automobile registration and licensing should be carried on by the State and not by counties or cities. Under the present conditions it is necessary to make the numbers removable, as almost every county has its own particular favorite spot in which it requires the numbers to be displayed. Confusion and freak legislation are the result of the rule of letting each municipality or county make its own laws and ordinances regarding motor traffic.

31,000 CHEER KNIGHT AT COLUMBUS

Great Throng Sees His Triumph in 200 Miles Race—Two Spills and a Horse Provide Thrills.

Drawing no less than 31,000 spectators and breaking all records for attendance at the Driving Park, the 200-mile automobile sweepstakes at Columbus, Ohio, on Sunday, 3rd inst., brought victory to Harry Knight, driving a Westcott. His time for the distance was 3 hours and 45 minutes, and for the whole period he did not leave his seat. He made only two stops—one for fuel and one for a tire. Two major accidents marred the contest, the injured being Lee Frayer, driving a Firestone-Columbus, and Ben Lawwell, a substitute mechanic on a Buick, although neither man was very seriously hurt.

It was the greatest crowd that has ever gathered at the Columbus racetrack, and the Columbus Automobile Club, which conducted the contest under A. A. A. rules, figures that it will have a profit of over \$10,000 after every bill is paid. Knight, the winner, in addition to getting the Hoster-Columbus cup as a permanent trophy, received \$500 cash, and also captured two cups offered by local hotels for the leader at 100 and 150 miles.

Frayer is credited with the fastest lap of the contest, a mile in 54 seconds. Although his accident put him out at the 86th mile he was leading at the time, and having been the leader at 50 miles he was awarded the Williams & Schlereth Automobile Co.'s cup for that achievement.

As though the speed work and accidents in the race itself were not enough, part of a shed roof south of the grandstand and loaded with small boys gave way during the middle of the race, bumping a lot of heads and bruising many shins. As the star thrill, however, a horse took fright at the roaring exhaust of one of the racers that came close to the fence. The horse jumped the fence, pulling a buggy after it, and came down the stretch in the path of the oncoming machines. Officials and others rushed out on the track to stop the runaway, and one of the cars narrowly escaped hitting some of them and striking the horse. The latter finally dashed through a gateway at the right, upsetting a motorcyclist and bruising a number of people before being stopped.

The first car to drop out was the Cino, driven by John Raimsey. Magneto trouble made its retirement necessary at 15 miles. A Ford, driven by W. G. Lake, quit at 31 miles because of ignition trouble, and a Cole, driven by John Jenkins, went out at 73 miles with a cracked cylinder. Lee Frayer, in the "Red Wing," a Firestone-Columbus racing machine, was in the lead

from the ninth mile to the 86th, when his right rear tire blew out as he was rounding the south turn. He took a long skid into some fence posts, where the machine rolled over twice with Frayer in it. He suffered intense pain, but at the hospital that night it was said that his injuries were chiefly around the hips, with a number of serious bruises and possible internal injuries.

Frayer's retirement put Knight in the lead, as Knight had been in hot pursuit all along and was gaining. It was not until the 192d mile that the Buick, then in third place, came to grief, at exactly the same point where Frayer's car met disaster. John Raimey, who had started with the Cino until it retired, was driving the Buick to relieve Frank Lawwell, whose goggles had broken. Lawwell's brother Ben was acting as mechanic. The right front tire gave way and the car skidded into the embankment, throwing Ben Lawwell high in the air. He struck a broken fence post and was badly bruised. Raimey stuck to the car, which gave him a shaking up before it came to rest. Knight's Westcott had finished some time before, and the two remaining Jacksons finished in 4:10 and 4:15 respectively.

Protest Settled; St. Louis Makes Awards.

After considering the protest of W. B. Scott, driver of the Flanders car, against H. L. Bagley, who piloted a Ford, in the St. Louis-Kansas City reliability run, the Contest Board of the American Automobile Association has ordered the award of the first prize in the roadster class to Scott. The Inter-City contest was held under the auspices of the St. Louis Automobile Dealers and Manufacturers Association, Monday, Tuesday and Wednesday, 14th-16th ult. Scott had protested on the ground that the Ford car used a cut-out and a wrapped steering wheel, neither of which was stock equipment. The protest has been sustained and the Ford car disqualified in the roadster class. The Dorris car, driven by J. E. Baker, has been awarded the cup for touring cars. The official score is:

Touring Cars.

Driver and Car.	Road Score	Technical Score	Total Score
J. E. Baker, Dorris.....	0	0	0
Herm'n Schnure, Marmon	3	0	3
C. M. Barnard, Mitchell..	9	0	9
George Neff, New Parry..	7	5	12
C. C. Donovan, Interstate	56	8	64
John H. Phillips, Hudson	12	53	65
E. P. Rhodes, Buick.....	53	36	89
Dan Histon, Cadillac....	Disqualified for work in control		
George Bolt, Ohio.....	Withdrawn		

Roadster Class.

B. W. Scott, Flanders...	0	2	2
Frank Dunnell, Ford.....	35	0	35
G. M. Herron, Flanders..	96	2	98
*H. L. Bagley, Ford.....	0	0	0

*Disqualified.

SCRANTON SEES DE PALMA DRIVE

Local Amateurs, However, Provide the Best Finish at the Meet—Mile Time Trials in Abundance.

Two accidents, in which nobody was injured, and five efforts to break the so-called record of 1:08 for a mile on a half-mile dirt track, were the woof and warp of the entertainment provided at the Minooka Driving Park, Scranton, Pa., on Monday, 4th inst. Of the eighth competition numbers on the program, in addition to the mile time trials, Ralph DePalma won five, two of them with a Mercer and three with a Simplex. William Haupt, with a National, scored one victory, while local men of the anthracite valley divided the other two. DePalma made the best time of the day, when in the first of his two tries at the 1:08 "record" he slewed his 50-horsepower Simplex twice around the oval in 1:11.

What was the most exciting finish of the day was provided by the amateurs in a three-mile event. Dr. McGinty and Joseph Wills, both in Buicks, furnished it. McGinty had a lead of almost half a lap at the start of the last mile and seemed a sure winner until his machine suddenly swerved almost off the track. While he was righting it and getting his stride again, Wills made a fine burst of speed and passed him. The doctor went after him in the last turn and overhauled him in the stretch, winning the race.

Collision with the fence came near bringing death to Eugene Cusick, who was driving a Buick in the five-mile non-stock, Class C, free-for-all against DePalma and Haupt. A fence rail was jammed through the car's radiator when it struck. Henry Kaufman, in the first event, had run his Buick into the fence at the same point, but without much damage to himself or his car. The summary:

Two miles—Won by Ralph Ammerman, Buick; second, William Krise, E-M-F.

Three miles—Won by Ralph DePalma, Mercer.

Three miles—Won by William Haupt, National; second, Tom Jacobs, Buick.

Exhibition mile—Ralph DePalma, Simplex. Time, 1:11.

Five miles—Won by Ralph DePalma, Mercer; second, Ralph Ammerman, Buick; third, David Birtley, Buick. Time, 7:54½.

Exhibition mile—Eugene Cusick, Buick. Time, 1:21.

Three miles, amateur—Won by E. F. McGinty, Buick; second, Joe Wills, Buick. Time, 4:41½.

Five miles, non-stock, Class C, free-for-all—Won by Ralph DePalma, Simplex; second, William Haupt, National. Time, 6:39.

Exhibition mile—Ralph Ammerman, Buick. Time, 1:20½.

Three miles, non-stock, free-for-all—Won by Ralph DePalma, Simplex.

Exhibition mile—William Haupt, National. Time, 1:16¾.

Three miles, non-stock, Class C, free-for-all—Won by Ralph DePalma, Simplex; second, William Haupt, National; third, Ralph Ammerman, Buick. Time, 2:41¾.

Exhibition mile—Ralph DePalma. Time, 1:17½.

More Match Races in South Jersey.

Drawn from neighboring towns in swarms, people poured into the little town of Salem, in the southern part of New Jersey, on Labor Day, 4th inst., to witness the automobile races given under the auspices of the so-called South Jersey Motor Club. The half-mile dirt track of the Salem Driving Park Association was used; it was the first time motor cars ever were driven over the course. Several well known drivers participated in connection with a number recruited from local and nearby sources. The program, like all others of the "club," was made up of time trials and match races.

The summary:

Five mile match, Harry Ringler, Mercer, vs. W. D. Morton, Kline—Won by Ringler. Time, 7:08.15.

Five mile match, A. Padula, Abbott-Detroit, W. D. Morton, Kline, and Baker, Metz—Won by Padula. Time, 7:23.25.

Five mile match, between David, Velie, vs. Morton, Kline—Won by David. Time, 7:05.25.

Five mile handicap—Won by Padula, Abbott-Detroit (scratch); second, Meager, Kline (10 seconds). Time, 8:35.

Five mile handicap—Won by Padula, Abbott-Detroit (20 seconds); second, Ringler, Mercer (scratch). Time, 7:17.

Five mile match, Harry Ringler, Mercer, vs. R. S. Blockson, Jackson—Won by Ringler. Time, 6:37.45.

Five mile match, David, Velie, vs. Blockson, Jackson—Won by David. Time, 7:30.

One mile time trial, to beat 1:19—Mullin, Simplex. Time, 1:18.

One mile time trial, to beat 1:18—Morton, Kline. Time, 1:17.35.

One mile time trial, to beat 1:19—Ringler, Mercer. Time, 1:18.45.

Five mile match, Ringler, Mercer, vs. Padula, Abbott-Detroit—Dead heat. Time, 7:16.12.

Truck Contest Had No Cass Competitor

Through a similarity in names, it was made to appear that the Cass Motor Truck Co., of Port Huron, Mich., had a Cass truck in the recent Chicago-Detroit motor truck contest, which was not the case. Inasmuch as the Cass company had not even considered entering a truck in the contest, the confusion of names resulted in some little misunderstanding.

MARVELOUS SPEED ON MAINE SANDS

That is, it Seemed Marvelous Until Course Was Found to be Short—Rutherford Biggest Whale on Beach.

Ideal weather, complete freedom from serious accidents and the presence of thousands of visitors combined to make the automobile racemeet on the Old Orchard beach, September 4, 5 and 6, a successful affair. It was the first attempt of the Old Orchard Automobile Association to promote races at that fashionable Maine resort, and its success promises an annual meeting, but surveyors' certificates and tested watches probably will be required on future occasions.

Chief honors went to John M. Rutherford, driving a National, and Louis Disbrow, at the wheel of a Pope-Hartford. Rutherford covered what was said to be a 50-mile course with turns in 30 minutes $6\frac{1}{2}$ seconds, and Disbrow captured a 25-mile race in 15 minutes and 25 seconds, both of which are heralded as "beach records" and were so much faster than even the speedway records that on the last day it dawned on someone that something was wrong somewhere. The suspicion led to the discovery that the five miles out and home course that had been used was only two miles short.

Nearly all the races of the first day were against time, to establish records, as the course was in perfect condition. Louis Disbrow, Pope-Hartford, in an exhibition of five miles with turn, covered the distance in 3 minutes and 3 seconds, and L. F. N. Baldwin drove a Stanley Steamer over the mile course in 42 seconds. The feature of the day was the 10-mile race, in which Rutherford, National, jumped to the front at the start and held the position, although hard pressed throughout. The race for small cars had but two starters and H. J. Habick, Cole, led the way throughout the 10 miles, winning 52 seconds ahead of N. A. Mitchell, Chalmers. Time, 8:04.

The second day interest was centered in the 25 and 50 mile races, which established records for these distances. The best contest, however, was the ten miles race, between Harry Endicott, Inter-State, and H. J. Habick, Cole. Their cars were close at all times and Endicott crossed the tape one-fifth of a second in advance of Habick. Time, 7:56 $\frac{1}{2}$. Rutherford in the National in the 50-mile race, outclassed Disbrow, Pope-Hartford, and won handily, Disbrow finishing second and Mitchell, Chalmers, third. Time, 30:06 $\frac{1}{2}$. Disbrow, however, took the 25-mile race from the same contestants in the alleged record time of 15:25. Baldwin in a trial against time beat his previous effort by two seconds.

On the third day, the day when the phe-

nomenal time made on the previous days was explained by the discovery that the course was short, the feature event was a hundred miles race. Like most of the other "features" it went to John M. Rutherford, National, with Louis Disbrow, Pope-Hartford, second. The time was 98 minutes and four fifths seconds. A ten miles contest between H. J. Habick, Cole, and V. A. Nelson, Inter-State, was won by the former in 12:00 $\frac{4}{5}$. L. F. N. Baldwin, Stanley Steamer, lowered his mile record of the previous day two seconds, covering the course in 38 seconds. The summary:

Monday, September 4.

Ten miles, stock chassis—Won by H. J. Habick, Cole; second, N. A. Mitchell, Chalmers. Time, 8:04.

One mile time trials, free-for-all—Won by L. F. N. Baldwin, Stanley Steamer; second, John M. Rutherford, National; tie for third, G. C. Jessup, Buick, and Harry Endicott, Inter-State; fourth, C. L. Bowler, Pope Hartford. Time, 0:42, 0:47, 0:54 and 0:57.

Ten miles, free-for-all—Won by John M. Rutherford, National; second, Louis Disbrow, Pope-Hartford; third, C. L. Bowler, Pope-Hartford; fourth, Harry Endicott, Inter-State. Time, 6:15.

Five-mile exhibition, with turn—Louis Disbrow. Time, 3:03.

Tuesday, September 5.

Ten miles, stock chassis—Won by Harry Endicott, Inter-State; second, H. J. Habick, Cole. Time, 7:56 $\frac{1}{2}$.

Twenty-five miles, free-for-all—Won by Louis Disbrow, Pope-Hartford; second, J. M. Rutherford, National; third, Harry Endicott, Inter-State; fourth, Harry Cobe, Jackson; fifth, G. C. Jessup, Buick. Time, 15:25.

Fifty miles, free-for-all—Won by J. M. Rutherford, National; second, Louis Disbrow, Pope-Hartford; third, M. A. Mitchell, Chalmers; Harry Cobe, Jackson, did not finish. Time, 30:06 $\frac{1}{2}$.

One mile time trial—L. F. N. Baldwin, Stanley Steamer. Time, 0:40.

Wednesday, September 6.

Ten miles, match, H. J. Habick, Cole, vs. V. A. Nelson, Inter-State—Won by Habick, Cole. Time, 12:00 $\frac{4}{5}$.

One hundred miles, free-for-all—Won by John M. Rutherford, National; second, Louis Disbrow, Pope-Hartford; third, H. E. Holt, Pope-Hartford; fourth, Harry Endicott, Inter-State; fifth, C. C. Jessup, Buick. Time, 1:38:00 $\frac{4}{5}$.

One mile time trial—L. F. N. Baldwin, Stanley Steamer. Time, 0:38.

Kansas City Racemeet is Abandoned.

After making fruitless efforts to get the mile dirt track at Kansas City, Mo., in condition for a three-day racemeet, September 2nd to 4th, the Kansas City Motor Club was compelled to abandon the project.

TO RESTORE SP. EDWAY TO PUBLIC

Motorists to be Permitted Use of New York's \$6,000,000 Roadway—Another "Horse Trot" Course Gone to Seed.

When early in July the Licensed Automobile Dealers of New York City ventured to appoint a committee to wait on Park Commissioner Stover with a view of having the \$6,000,000 Harlem Speedway thrown open to motorists few they were who anticipated that the committee would receive more than a more or less formal hearing and a more or less respectful bowing-out. The Commissioner, therefore, gave cause for genuine surprise when late last week he made known his purpose to do exactly what the dealers' organization had requested.

During recent years the expensive speedway, which was more or less a political job, has been merely a training course and playground for perhaps a half hundred owners of fast horses. It has been well maintained and policed at great expense for their benefit, and as their numbers have steadily dwindled, the Commissioner's action merely follows the "rule of reason." He is losing no time in preparing the fine, wide, nearly straight stretch for its new and wider public use; it will become a parkway for pleasure vehicles of all kinds. In response to the Motor World's inquiry, the Commissioner's office stated that it would be thrown open in the "near future," no approximate date can be set, but scraping the soft surface from the nearly two miles of road will require more than a few days. The Commissioner's office also stated that it is possible that a strip at the right hand side of the road may be reserved for fast horses, but this is by no means decided. When the Speedway is thrown open it will afford direct communication through 155th street at one end and Dyckman street at the other, with Lafayette Boulevard and Riverside Drive, thus forming a parkway outlet for upper Seventh avenue, leading directly from Central Park, and forming a superb circular drive of about 20 miles.

That the Bronx Speedway, which bisects the Grand Boulevard and Concourse, will similarly be thrown open when pressure is brought to bear seems fairly certain. It is nearly five miles in length and weeds and grass have been growing on it in several places so little has it been used. The driveways on either side are sufficient for all traffic purposes and there is no great call for the throwing open of the Speedway, which nevertheless remains a practically deserted roadway. The driveways have been undergoing repairs and motorists have practically pre-empted the Speedway, which their cars have rolled so hard as to spoil it for trotting.

SOME PENALTIES OF GREATNESS

How Living Up to a Proud Reputation
Entails Unusual Demands—Experiences
of a Famous Manufacturer.

That it is possible for an automobile manufacturing company to attain the dizzy heights of "reputation" and to enjoy the sweetest fruits of overwhelming patronage by the best people, without the officers of the concern getting any distorted view that would dull their sound business sense, is shown by the frank discourse to a Motor World representative by a directing head of one such company in relation to its affairs and outlook. His remarks also indicate that in the automobile industry as elsewhere, there are some penalties to greatness, and that it imposes responsibilities quite commensurate with its rewards.

"We are on a pedestal," he explained, "and it is a position that is not without its dangers, as we all along have plainly realized. Such is the reputation of our cars that there are not a few new customers who upon buying them expect to get a more than perfect machine, that will never give trouble, never break and never require a replacement of any kind in long years of use, no matter what kind of abuse or hard service it may have. The reputation blinds them to the fact that an automobile is a mechanism working under unusual conditions of strain, shock and vibration, and that like every other complex mechanism it requires proper care and occasional replacement."

"For instance, only recently a wealthy man, but one wholly unversed in mechanical matters, complained to us that his friends who own cars of our make had persuaded him to buy one, on the ground that it would save him all kinds of money in the repair and replacement end, whereas he already had mechanical trouble after only a few weeks' use. We investigated and found that the man had employed as his chauffeur a fellow who was a Sandow in build and who, with the meagerest knowledge about driving, changed gears by brute force. He was so strong that in giving one of his mighty wrenches to the gear shift he had broken a steel ball in one of the ball bearings. These ball bearings are the most expensive and the best that we know how to get, but nevertheless he had managed to cause a breakage. The broken ball got into the transmission gears, and being so hard and sharp it raised hob with them. The owner made it plain that the reputation of our car carried with it an implied indemnity against such a happening, so we gave him an entirely new transmission gear. However, we recommended a change of chauffeurs.

"Incidents of this general character, although only occurring with a small percentage of our customers, pile up as a big item financially in the aggregate, representing an expense that owners of low or medium priced cars would not expect to shoulder on the manufacturer and that the latter would flatly refuse to take.

"Viewing another aspect of our relations with customers, it is no unmixed blessing to have a large number of them keep writing us or visiting the factory to tell us over and over again how wonderful their particular cars are. Each one of these owners seems to think that he has the most remarkable car in the world, and that the mileage, the speed and the hill climbing that he has accomplished without any cost for repairs is something that will astound not only us but the whole motoring fraternity. While we appreciate their enthusiasm, it takes a surprisingly great amount of time and patience to give each of their repeated encomiums proper attention and acknowledgement without hurting their feelings or pride by not showing in every instance a high degree of interest in an old story.

"It is because of this come-back feature of great name and high reputation, that it is a mistake for a concern like ourselves to put out a low powered or small model, except perhaps in a purely town car. People will buy the name, thinking to get in even the small car the same performance and capacity as have become recognized in the more powerful models, and they can't understand it at all when the small car with seven or eight people in it will not go 50 miles an hour over the toughest roads without breaking a spring or will not carry the load up a hill where a big car can barely go over.

"Not the least annoying feature of having a great proportion of business with very wealthy people, is that so great a part of their motoring affairs are left to chauffeurs who, like the rest of the household employes, demand a large rake-off for themselves in purchases for their employers. There are many rich men who are severe with grafting employes at their offices or factories but who tolerate all kinds of grafting by the employes at their homes, while knowing that everybody from the butler to the furnaceman is taking commissions. Some of them even think that they ought to help get a commission for their chauffeur in buying a car. Whether they want to split with the chauffeur, we don't know.

"Stocks have been dripping away in price and conditions in general business have been very uneasy, largely because of the big men not knowing exactly where they stand until anti-trust matters become less entangled and confused. Some of these men are in such a state of mind that they do not dare talk with each other, except to comment on the weather, for fear a stenog-

rapher might be behind a screen or up a chimney somewhere, taking down their conversation as the basis for criminal prosecution. Our market for cars has been equalized to some extent, however, by the fact that the bear interests have been making money just as fast as the bulls have been losing it, and a bear is just as good a customer as a bull.

"When we first brought out our trucks, we naturally thought that the selling of them might safely be placed with those of our men who had exhibited conspicuous ability in selling our pleasure cars. We gave them every chance to repeat on the commercials, but we ultimately found that they were not the men for the work. Furthermore, it was the case that when they went back to pleasure car selling again, their work was adversely affected by their commercial vehicle experience, involving them in lines of thought and selling argument that did not bring as good results as those used before. We now recognize that pleasure cars and trucks are two widely different selling propositions, and we are managing our sales organization accordingly.

"Undoubtedly our success and present position inspires considerable envy on the part of others, and they may fancy that we are dwelling in an atmosphere of hauteur and smug security. We ourselves realize that, as in most things, it is the most fit who survive and that constant vigilance and effort are necessary for commercial eminence."

Lawyer Loses Suit on Unusual Point.

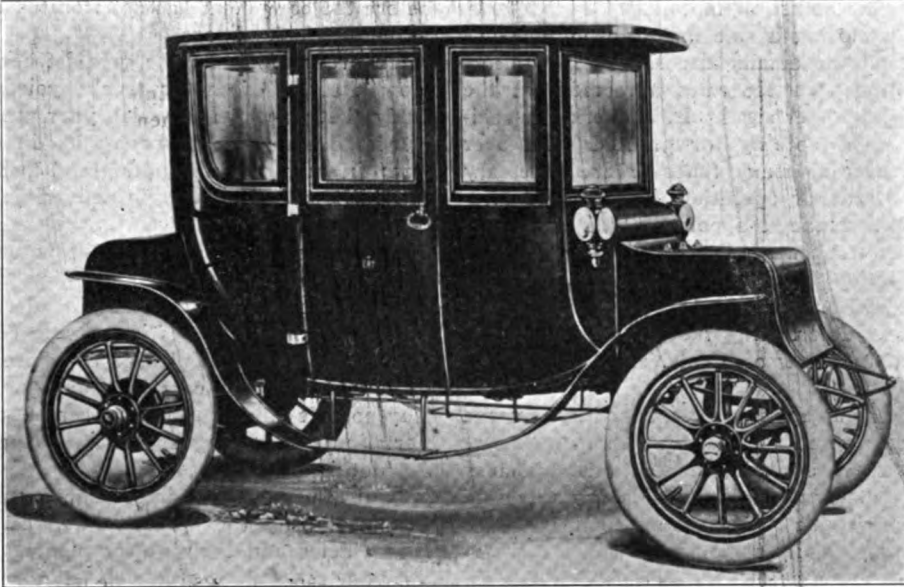
Although a suit for \$350, brought by George L. Kaeser, a garage owner, of 926 Farmington avenue, Hartford, Conn., against Howard J. Bloomer, a lawyer of the same town, did not contain any extraordinary or remarkable facts worthy of recording, it did develop into a veritable "cause celebre" from a legal standpoint and will come before the Supreme Court for final decision. The lawyer had his automobile repaired in the garage of complainant and refused to pay the bill, claiming that damage had been done to the machine.

When the case came up for trial the defendant lawyer was represented in court by an attorney, but the moment the prosecuting attorney rested his case Bloomer arose and, acting as his own counsel, called a witness to the stand and examined him. He then offered himself as witness and thereby aroused a storm of protest from the opposing lawyer, who claimed that an attorney could not testify as witness in a case with which he was connected. The judge sustained the objection and the defendant-lawyer was not allowed to testify. Bloomer filed an appeal on the ground that he, as defendant, was prevented from testifying in his own behalf, and the Supreme Court will have an opportunity to decide this important question.

WAVERLEY'S ELECTRIC LIMOUSINE

Indianapolis Manufacturers Evolve Model to Compete With Gasolene Vehicle—Its Dignity and Characteristics.

With the object of forcing the electric vehicle into active competition with all other forms of town car, the Waverley Co., of Indianapolis, Ind., has developed a new



THE NEW WAVERLEY FIVE PASSENGER LIMOUSINE ELECTRIC

enclosed model, which it terms a Limousine Electric, and which, besides seating five passengers, has the merit of affording the driver an unobstructed view through the front window. The machine, too, is a "full-sized" car, having a wheel base of 104 inches, a body sill 129 inches long and an over-all length of 144 inches.

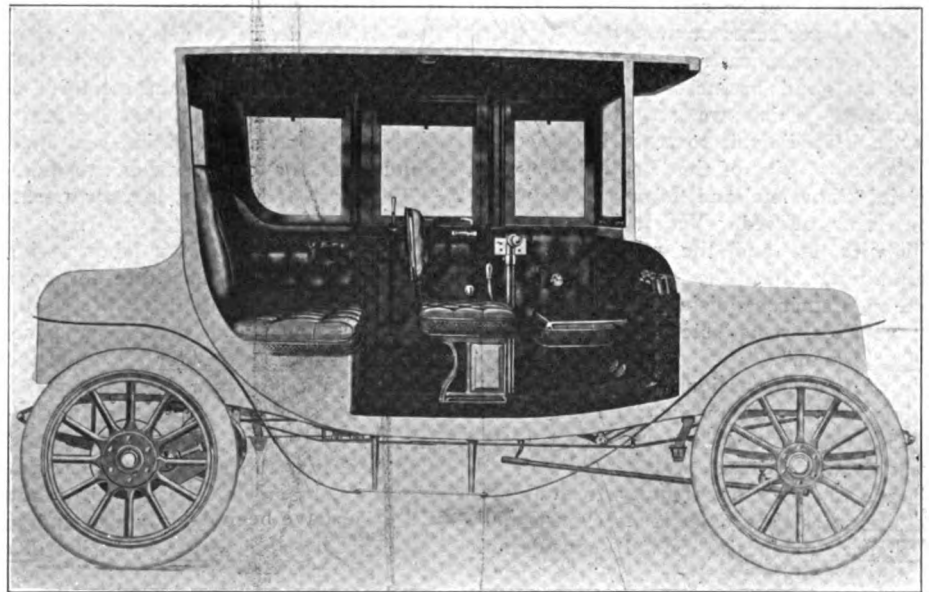
In respect to external appearance, the new model is described as being a refinement on the lines of the French town chariot of the First Empire. Its dignity of line is plainly indicated by the accompanying illustrations, in one of which the seating arrangement also is depicted. The departure from the "Sedan" outline and its corresponding method of suspension, which, in the minds of some is believed to be "overworked," is deliberately made with the idea that a more suitable form for the purpose can be achieved.

Mechanically, the new limousine has practically the same equipment as the standard Waverley roadster; the chief point of difference is in the wheels and in the tire equipment, which, in the new model, is 34 x 3½-inch in front and 34 x 4 in the rear. The standard form of multipolar motor used on all Waverley cars is retained, as is the flexible shaft transmission from motor to rear axle, which includes a double-universal shaft that lies directly in front of the axle and normally parallel with it, or nearly so, and which drives the full-floating

axle equipment through herringbone gears. All moving parts are thoroughly encased and run in an oil bath. The no-arc controller affords four speeds in either direction, but is so safeguarded by automatic means that it is impossible to start in either direction save by introducing the lowest speed first.

Either side lever or wheel steering may be obtained on the new model, at the option of the purchaser, the latter embracing

a wheel and sector form of gear. The braking equipment consists of a contracting band brake on the armature shaft and double internal-expanding rear wheel brakes, acting on 12-inch drums. Both sets



INTERIOR AND SEATING ARRANGEMENTS OF THE NEW WAVERLEY

of brakes are pedal operated. The spring suspension is composed of full-elliptic side members with platform members both front and rear.

STUDYING NEEDS OF TRUCK USERS

Fenner Discusses the Several Systems of Promoting Sales—Also Methods of Keeping Buyers Satisfied.

Quoting the assertion that "There are but three forms of cash business in existence today, namely, transportation, postage stamps and motor vehicles," C. D. Fenner presented a useful synopsis and discussion of the various methods of handling the sales of commercial vehicles, at a recent meeting of the Motor Truck Club of New York City. In the light of his wide observation, Fenner, who is general sales manager of the Alden Sampson Co., declared it to be the good fortune of the American branch of the truck industry to have experimented with but one of the three general selling methods which are known and practiced abroad. The method of making direct sales, which is the one chiefly practiced in the United States, in his estimation possesses superior advantages over any others. Referring to the various schemes that have been applied both here and abroad, he said:

"Methods of merchandising trucks and their service can be classed under three heads: First, straight rental; second, lease and purchase; third, straight sale. Fortunately for the industry in this country, the first two have not received the attention here that they have abroad. Of these straight rental is the simplest, most easily controlled and perhaps the most profitable. The English motor contractors are report-

ed each year as having conducted a very successful business. There is nothing to prevent a dealer from renting his demonstrating vehicles whenever opportunity of-

fers, or, indeed, from conducting a regular rental service, if he has a suitable service station.

"Lease and purchase, resorted to in some cases abroad, offers many temptations to our factory branches. In England the purchaser pays cash in advance for body and painting, one set of tires and fire insurance. He pays monthly for driver, fuel and supplies, tire repairs and replacements and liability insurance. He also pays monthly a fixed sum for storage, inspection and maintenance. He signs a chattel mortgage, or lease, making the vehicle the property of the seller until such time as it is fully paid for, and he agrees to settle the balance, which represents the cost of the chassis, less tires, plus depreciation and interest, in quarterly payments covering a term of three years.

"The above is varied somewhat by allowing the purchaser to store the vehicle on his own premises, but he must agree to allow the driver ten hours off duty at night and an additional hour in the morning for cleaning and lubricating. He must also agree to send his vehicle thoroughly cleaned once a week, on a day agreed upon, to the service station of the seller and to leave it there half a day for purposes of inspection and adjustment. It is generally found that one hour is sufficient time to detain the vehicle.

"The distance run each quarter is not to exceed 6,500 miles per vehicle, an average of 500 miles per week, and the speed is not to exceed 15 miles per hour under any conditions. While the seller undertakes to conduct a weekly inspection at his service station, to make all necessary adjustments and repairs, renew worn and broken parts and to give two complete overhauls each year, he will not be responsible for breakage due to accidents or neglect.

"Straight sale, cash on delivery, as dictated by good business judgment, is the form with which we are most familiar, though it is difficult to trace it sometimes in the complexity of the 'Try it before you buy it,' 'Show me' and 'Money back' variations now offered. Yet it is fortunately still with us, and the responsibility for maintaining this, the safest and surest method of merchandising any form of motor vehicles, rests solely with the dealer and salesman."

In further discussion of the truck marketing problem Fenner continues:

"The education of the purchaser is the great common cause. We should take advantage of every opportunity to study the conditions as they exist in each customer's particular business. Spend considerable time at his shipping door, note the quantities in which the goods come through, ride on his trucks, study his customers and their facilities for unloading, visit his stable and note how he handles his equipment, and then prepare an argument which will not only convince him absolutely that he is operating his present equipment at a

loss, but educate him to the superior advantages of motor vehicles and the increased efficiency which is to be gained by their use.

"With such an array of facts and arguments we are prepared to approach the desk of the actual purchaser. A general argument confuses him, wastes his time and yours, because you have not investigated his conditions, and you are not even sure that his transportation proposition would admit of the changes necessary for the efficient use of motors.

"In closing a sale make absolutely sure that all the details discussed are definitely mentioned in the sales agreement at the time customer signs. In delivering a vehicle leave nothing for granted. Go over and over as many times as are necessary all details of operation, care and maintenance. Make it a point to see truck and driver frequently, directly after the weekly inspection if possible. Remember that the first five or six weeks are the most important in determining the schedule of operation, the habits of the driver and the life of the truck.

"Remember your responsibility to the customer and the industry; and, even more important, don't let the customer even for one small instant forget his responsibility to the truck. After using their trucks a few days many customers forget the assurances given at the time of placing the order. Trucks are neglected, overloaded and speeded, and there is no redress.

"Two years ago I made a practice of writing a letter to my customers when they took delivery of their trucks in which I made such suggestions as the following:

"You have taken delivery of one of our trucks and we wish to thank you very much for your patronage, and to assure you of our desire to aid you in its operation and maintenance. We believe that a satisfied customer is our best form of advertising and in order that we may hold you in this class and obtain fair operating conditions for our vehicles we take this opportunity of bringing to your attention a few essential facts.

"The motor truck is a labor saving device. It is not a substitute for so many horses, but a new unit in the system of transportation. Your product must be constantly moved. Consider the units in your transportation system from the raw stock at the point purchased to the finished product in the hands of the consumer. You will find that the units that cause you the greatest amount of delay, worry and expense are those in which human and animal strength are used to the exclusion of other sources of energy.

"Up to the present time the most troublesome unit in all transportation systems has been that between the freight depot and the receiving department at the one end; between the shipping department and the freight depot at the other. In order to reduce the size of some of these troublesome

expensive units you have invested money in motor trucks and entered the transportation business in earnest.

"You are managing a railroad, but with a very important difference; there are no rails and your expensive rolling stock is subjected to shocks and vibrations on all kinds of roads and grades. The success or failure of this new unit in your business depends entirely on your management and it is of the utmost importance that principles of good management are established before the equipment has deteriorated from abuse and lack of care.

"In order to obtain the greatest benefits from the use of motor trucks you must study the quantities in which your product comes to the shipping room; its distribution; the methods of handling and loading; the duties of the drivers in delivering, collecting and obtaining receipts; the schedule of the routes to be covered; the nature of the roads, grades and chances for traffic delays. In other words, it may be advisable to make radical changes in existing conditions. We should be pleased to advise you on any details you care to submit or you may consult any one of a number of transportation engineering experts who specialize in this subject.

"One of the most important items of management is the operation and care of the vehicles and their power plants. Lay out your schedule so that your vehicles are running at a moderate speed and loaded a maximum of the time they are in service. Vehicles should not be in service more than ten hours out of every twelve. At least two hours out of every twelve should be given to care and maintenance.

"Wash each vehicle once in every twenty-four hours. After washing wipe off the running gear. Get it clean if you have to use gasoline and a scraper. As each part can be recognized test it. It may be loose, it may be worn, it may be broken, or it may simply need lubrication. A worn part may need adjustment, a badly worn part certainly needs replacement.

"Anticipate breakdowns that may occur in service. Replace the worn part when the truck is out of service. It saves delays that are more expensive than the worn part discarded. An extra vehicle or power plant in reserve is good economy.

"Give the subject of maintenance the consideration it deserves, even after a truck passes to its owner. It is worthy of the best talent in your organization. Standardize the conditions and insist on good management. Give your motor trucks 'roundhouse care.'

"I am convinced that we must provide inspection and facilities for maintenance that will aid the small user and serve to educate the big fellow with his own service organization. If the customer does not avail himself of these opportunities, but prefers to neglect and misuse his vehicle we are justified in canceling our guarantee."

Control Systems; the Trend Toward Central Locations

There is an old saying to the effect that "what cannot be cured must be endured," but while the logic of the proverb is irrefutable, the statement itself is more or less old-fashioned and out of date. Which is to say that in this present day of enlightenment there scarcely is such a word as "cannot." Particularly is the word missing from the vocabularies of members of the

levers, spark and throttle control levers and pedals. In some makes of cars some or all of these elements have been changed out of all semblance to the originals and still are far from ideal. In this respect gear shift and emergency brake levers are the most frequent offenders, and though it has been suggested that the only apparent excuse for the popularity of the present system of

more apparent. In some makes of cars both levers are placed outside the body, and while this has the advantage that it allows the driver more leg room it possesses the disadvantages that it requires the operator to reach out over the side of the body to get at the levers. This necessary stretch requires time, and as the loss of even a few seconds may mean an accident, designers



Fig. 1—Illustrating an advantageous arrangement—Stoddard-Dayton with central control and left-hand steering wheel.



Fig. 2—Overland control levers, illustrating convenience of center location and right hand drive.

engineering fraternity when that which supposedly "must be endured" entails disadvantages for which a cure apparently is not to be found. Scientists and engineers have no propensity for sitting calmly and "enduring," and consequently every day something hitherto "impossible" is accomplished.

Not a little of the accomplishment has had to do with the construction of automobiles, and though at first it might appear that some details have been perfected at the expense of others, in the majority of cases the fault-eliminating process has been spread over the entire car and few parts have been neglected. Practically every part of the car has received its share of attention and revision where necessary, but the lamentable fact remains that in many cases the changes which are made are little if any better than the original arrangement.

Perhaps that part of the car to which this best applies is the control mechanism embraced in gear shift and emergency brake

side levers is that at the time of its adoption it became a "feature of fashion," it is obvious that that is not the only reason for its continuance.

But whether such systems ever will be changed so as to eliminate side levers entirely is open to question; cars have been built wherein gear shifting operations were carried on automatically, the gear shift lever thereby being eliminated; similarly the side brake lever was eliminated on some, the brakes being operated pneumatically; but as all such arrangements entail more or less complex mechanism, and as the trend at present is toward simplicity, it is doubtful whether they ever will prove popular; the side levers therefore are likely to remain for some time at least.

Simultaneously with the advent of the high-sided body the disadvantage of the side lever arrangement where the levers are at the right of the driver and the car also is operated from the right side, became

have been quick to realize that one of the levers at least should be placed inside the body within easy reach of the driver's hand.

As to which of the levers should be inside is a rock upon which designers split. Some prefer to place the gear shift lever inside on the assumption that it is the most used, and therefore should be easiest of access, while others are of the opinion that this lever should be outside. Just which position, outside or inside, permits of the greater accessibility depends a great deal on the construction of the individual body, but it is perfectly obvious that as the emergency brake is the most important part of the car in an emergency the lever which actuates it always should be placed so as to be instantly accessible without the necessity for complicated or unnatural movements.

To overcome the disadvantage of inaccessibility or cramped quarters entailed with some systems of placing the levers

either just inside or just outside the body, there remains the alternative of placing them in the center of the footboard. Centrally located gear shift and emergency brake levers now are a feature of many makes of cars, and the fact that the number of manufacturers who are so arranging these elements of the control mechanism constantly is increasing is evidence in itself that the system possesses advantages which none other is heir to.

Not the least of the advantages of the system is that it is applicable to cars in which the steering wheel is placed on either the right or left side, in addition to which very slight alterations permit the

Barring such other considerations as have been mentioned, however, the comfort of the driver, who often is the owner, and the safety of the passengers are paramount, and on this count centrally located levers score heavily. Primarily, the location of the levers close to the driver's hand permits the maximum of leg room, while at the same time an easy, natural movement permits him to grasp either of the levers without undue stretching or exertion. The car, therefore, is easily controlled and the safety of the occupants is increased.

The necessity for only easy and natural movements is shown quite clearly in the accompanying illustrations, Fig. 1 being the

In the Stoddard-Dayton arrangement illustrated in Fig. 1 the emergency brake is shown about half on and the gear shift lever is in the neutral position. Therefore it may be seen that inasmuch as the high speed position for the gear shift lever is toward the driver and the full release position for the brake lever is away from him there could be very little chance of confusion in case of emergency, as normally the levers are more widely separated. To further increase the comfort of the driver and to make the levers equally accessible whether he be tall or short, the front seats of the Stoddard-Dayton are adjustable. Which is to say that the distance between

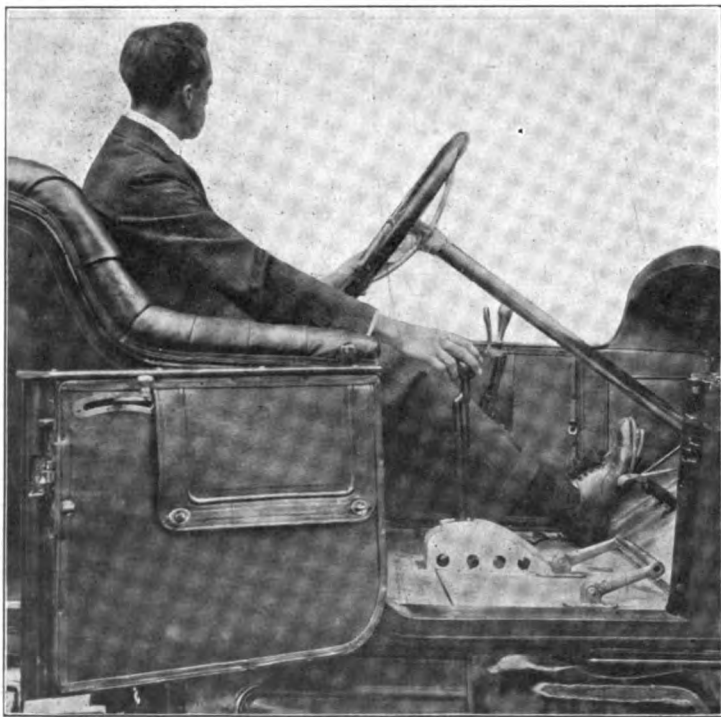


Fig. 3 Gear shift and emergency brake levers which are separated, as instanced by the White.



Fig. 4 -Right hand drive and control without sacrifice of room, as exemplified by the Hudson

manufacturer to offer the option of either position. Another of the advantages which the location of the levers in the center provides is that because of the comparatively short levers which may be used the driver's seat may be entered from either side. In many cases, however, this fact is overlooked and entrance is blocked by the presence of spare tires, which might as well be placed elsewhere.

From the viewpoint of the engineer centrally located levers should appeal inasmuch as a number of cross rods and shafts may be eliminated. In addition to which depreciation should be less because a greater proportion of the mechanism is fully housed and therefore less liable to injury from accident or wear due to the abrasive action of dust and road dirt. Lubrication is more easily effected because of the unit housing and other things being equal, ease of action should be greater by reason of the elimination of the friction generated in the bearings of long shafts.

new six-cylinder Knight-engined Stoddard-Dayton, and Fig. 2 being the standard Overland touring model. The Dayton Motor Car Co. is one of the latest exponents of left hand drive with centrally located control levers, and the picture shows graphically one of the greatest advantages of the arrangement, namely, the possibility of entering the driver's seat from the right side, that side being the one which invariably must be placed next to the curb in all the larger cities in the United States. For city driving, the location of the steering wheel on the left side also is an advantage in that from his position the driver is afforded a better view of overtaking vehicles and the danger of collisions when turning corners therefore is decreased. Furthermore, left hand drive permits the driver to guide the car or to change gears with his right hand, while at the same time his left hand is used as a semaphore to warn overtaking cars of intended stops or changes of direction.

the seats and the dashboard may be varied within a limited range to suit requirements. Another of the detail refinement which may be noted is that the front doors are provided with latches, by means of which they may be fastened open about an inch to provide ventilation.

In the Overland arrangement, which is illustrated in Fig. 2, the steering wheel is placed at the right, the centrally located control levers therefore being operated with the driver's left hand. The arrangement possesses many of the advantages of the other, though it differs from it in that entrance to the driver's seat is slightly more difficult because of the position of the levers near the seats. In the Stoddard-Dayton the driver goes behind the levers, whereas in the Overland he must go in front of them, or rather over them. This is a small matter, however, and is more than offset by the increased room and ease of manipulation of the levers which this position permits. Like the left hand drive

arrangement the location of the steering wheel at the right and the control levers in the center permits the driver to enter from the right side of the car—provided the entrance is not blocked by spare tires.

Though the illustration shows the Overland levers fairly close together, they are more widely separated when the car is being driven, the emergency brake lever being shown in a position to lock the wheels, while the gear shift lever is in the neutral position. Practically the same method of latching the front doors open to provide ventilation also is used, the device consisting of a small brass hook which engages an eyelet on the door.

is placed slightly further forward than the gear shift lever and always is in plain sight. But barring other considerations the application of the brake demands an entirely different set of movements than are required when shifting gears, though this in itself should prove no detriment inasmuch as all cars have to be "learned" in the first place.

The arrangement of the gear shift lever, it may be seen, is such that perfectly easy control is afforded, the hand dropping quite naturally from the steering wheel to the lever, while at the same time the entrance to the driver's seat is unobstructed. A further provision for the comfort of the

prominent of the two, it has been made slightly longer than the gear shift lever. As may be seen in the illustration, the change from steering wheel to either of the levers may be made instantly, only natural and easy movements being required.

That not all right hand controlled cars are equipped with levers in as accessible positions scarcely requires the evidence given in Fig. 5; it is a fairly well-known fact. In this picture the emergency brake lever—generally recognized to be the most important element of the control mechanism—is so placed as to be well nigh out of the operator's reach. And the worst of the situation is that though the car illustrated

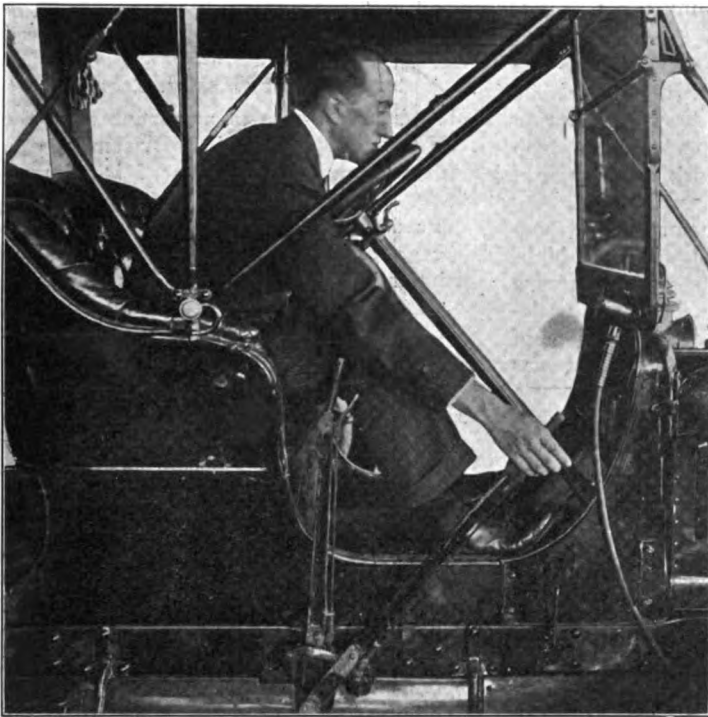


Fig. 5—Strained position and loss of time necessary in stretching for badly placed control levers

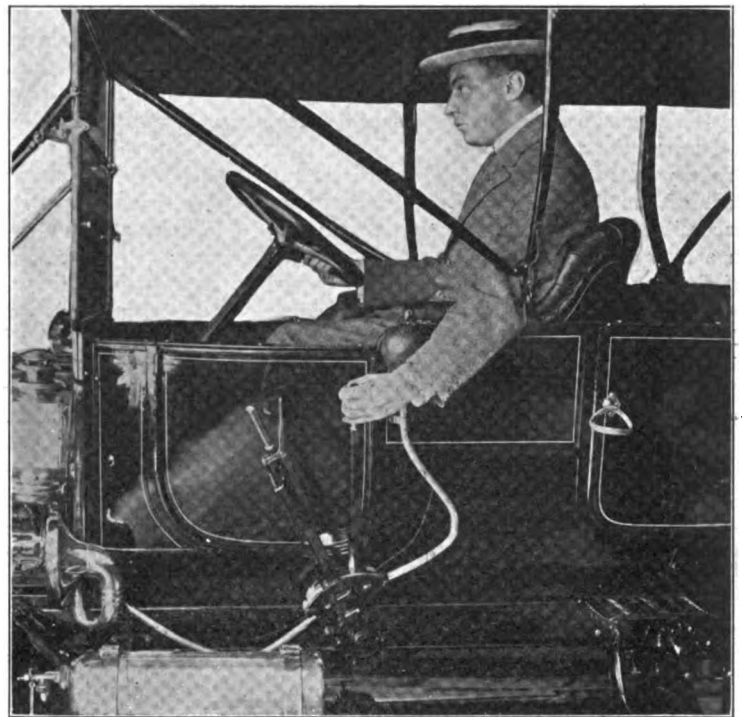


Fig. 6—Left hand drive and left hand control, of which the Reo is a notable exponent.

In the arrangement of the White control elements, illustrated in Fig. 3, a still different system is shown, and while the advantages of left hand drive and centrally located gear shift levers are combined, the emergency brake lever is mounted separately at the left of the driver, one lever therefore being on each side of the steering column. Whether or not the arrangement is better than when the levers are placed together is open to question. Certain it is that except in the case of an extremely "rattled" driver there is no possibility of one lever being moved in mistake for the other.

On the other hand, the location of the emergency brake lever is such that until the driver has become thoroughly familiar with the arrangement the absence of the lever from its customary place beside the gear shift lever might cause confusion for an instant. The possibility of this contingency is remote, however, as the lever

occupants of the front seats is the neat aluminum housing over the segment, by means of which the gear shift lever is held in position. As the housing fully encloses all the moving parts these may be lubricated freely without danger of oil getting on the wearing apparel of the passengers.

The orthodox arrangement of right hand drive and control, popularized by years of use, is illustrated in Fig. 4, the picture being of a Hudson "33" touring car. Though the Hudson is not the only car in which the location of the levers is such that they are within easy reach, while at the same time leg room is not sacrificed, the arrangement is noteworthy because of the skilful designing.

The right side of the body where the levers come is curved out slightly, forming a sort of recess into which the levers fit; they are therefore out of the way of the driver's legs. Recognizing the necessity for having the emergency brake lever the more

is an old one and the manufacturers may be pardoned, particularly in view of the fact that subsequent productions have properly placed levers, other cars placed on the market to-day and to-morrow are little better. To get at the emergency brake lever the driver must stretch down nearly to his feet, with his chest jammed up against the steering wheel, and to make matters worse, the lever in many cases is placed outside of a high door.

Gear shift levers, too, often are so placed that their manipulation requires that the driver be a contortionist. Be it said to the credit of designers in general, however, that the majority of cars turned out to-day have logically arranged control levers, though some of the "latest" productions show little improvement over the earliest types in this respect.

Left hand drive with left hand control is employed on comparatively few cars and the reason it is not more frequently used

is obscure, the only apparent ones being that the human race is a "right-handed race," or that having become accustomed to driving cars from the right side, the public is unwilling to make the change. To the advantage of the left hand drive, left hand control adds absolutely unobstructed entrance to the driver's seat, and when the levers are placed outside, as they are in the Reo arrangement illustrated in Fig. 6, greater leg room for the front seat.

Left hand control, however, again brings up the question as to which of the levers, if either, should be placed inside and which should be placed outside, and as in the case of right-hand driven and controlled cars the answer depends almost entirely on the construction of the individual body. The emergency brake lever on the Reo is the outer one, and is shown in the position at which the wheels are locked, the gear shift lever being shown in the high-speed notch.

Though the application of the emergency brake would require quite a stretch on the part of the driver, the lever still is in an accessible place and easily could be reached in a hurry. Similarly, while the movement of the gear shift lever into the high speed position brings the operator's arm against the top bow, the top is not always up, and the position is but momentary at best, though the interference might be inconvenient if gears required to be shifted continually as when driving through traffic.

That the arrangement of gear shift and emergency brake levers has been the subject of considerable thought is evidenced by the number of new arrangements which continually are making their appearance, the center location of these elements of the control mechanism being the latest and as considered by many—not without reason—the best. What the future arrangement will be, whether the levers will be eliminated entirely or whether they may some day be placed on the steering column in the form of buttons or very small levers, is difficult to forecast.

Estimate of the Inner Tube "Crop."

Speaking of rubber reclaiming, the recovery of inner tubes for automobile tires is one of the pretty parts of the business, that is, if the reclaimer knows how to do it successfully, says the India Rubber World. As a rule, they contain no fabric and no metal except the valve stem which is easily cut out. They are nearly "pure" and require no acid treatment, no electrical metal gatherers, etc. Moreover, thanks to the immensity of the motor business, worn-out tubes are gathered by the million. Figuring that there are 450,000 automobiles in commission in the United States and that an average of eight tubes is used a year, it would mean an annual crop of 3,600,000 tubes; say that the average weight of the tubes be two pounds each, the total weight would be 7,200,000 pounds. Reclaimed, it would give certainly 6,000,000 pounds of high-grade stock, mostly Para.

"HARVESTER TRUST" CHASTENED

(Continued from page 750)

machinery. All of the agricultural selling territory is plotted off into territories, divisions, sections and subsections, which are constantly worked and fine-tooth combed. This system requires that the salesmen in each small subsection constantly plug away getting information at each farm as to what pieces of equipment could profitably be replaced or added, the condition of the farmer's finances and what influence can be brought to bear through the members of the family or the hired men to induce the farmer to buy new machinery from time to time, if he himself is slow to realize its need. It takes long training and experience for the salesmen to become efficient pluggers along these lines. Those of the men who were entrusted with automobile selling became imbued with an exhilaration and hurrah spirit that made them drop their regular plugging work as though it were to be forgotten in a sordid past.

Their attempt at transformation from harvesting machinery pluggers to high-flying automobile salesmen was disastrous to the company's interests, because the developing of new business and increasing of sales was neglected to a degree that was not sufficiently compensated for by the sale of automobiles. After giving the experiment plenty of time to evolve whatever merits it might have, the company was forced to the conclusion that its agricultural machinery salesmen were wholly unfitted for automobile selling, and that putting them into the work was a costly mistake, not only by reason of the time lost from their development work but also because of the bad effect on this work after they returned to it.

More recently the Harvester company has been making a purely delivery wagon type, as being more nearly in line with its class of machinery in general. Since these are strictly utility vehicles, with no pleasure car atmosphere about them, they are less disrupting to the sales organization. But these machines meet a degree of abuse in service that is unparalleled by any other of the company's products. When one of these motor delivery wagons is sold, it is pretty certain to have a strenuous first six months, during which period every member of the owner's family and a good proportion of the neighbors will have a try at driving it. If a delivery boy visits a house where there is a pretty girl in the kitchen, he is likely to leave the motor running for half an hour with the machine at rest.

Whereas nearly all farm machinery is operated by people carefully trained in its use, the motor delivery wagon is expected to give good service no matter by whom it is driven or to what extent it is abused and neglected. To fulfill the rural customer's expectations, it would have to be foolproof and breakproof. As these qualities are as yet impossible of attainment in

any mechanism, the International Harvester Co. is not making an effort to force either the production or sale of the delivery wagons, simply filling whatever legitimate demand there may be in the ordinary course of business.

As the result of its experience, the company is convinced that the automobile business is a special business in itself and cannot be blended offhand with any other. Both in the manufacturing and the selling end successful results are only to be obtained by "going through the mill" just about as the established automobile manufacturers themselves have done, according to the company's view, and it therefore has forsaken its earlier plans, which contemplated so great an activity in selling automobiles to the farmers.

Enterprise Not Wholly Required.

If resourcefulness in argument were the chief requirement, a little Irishman who made a flying trip to Pontiac, Mich., immediately the new Flanders electric was announced, would surely have gotten the Chicago agency, according to E. LeRoy Pelletier, who for the Flanders Mfg. Co. has been examining the candidates. In rough and ready style the visitor combated and partially overcame practically every objection that Pelletier could offer. When the latter pointed out that the Irishman's \$25,000 cash capital was hardly enough to swing the Chicago agency properly, and that about \$75,000 would seem the right figure, the applicant declared:

"You're wrong there, me boy, because that hard earned \$25,000 is all I have in the world, and I'd work me fingers off and hock me shirt to save it, while some guy with \$75,000 easy money would be loafing on the job."

Pelletier then tried to show that the Irishman probably could not, for instance, hope to get the wealthy Jewish trade of Chicago as successfully as an agency firm having Jewish representation in its sales force.

"You're wrong again, me lad," answered the Irishman. "It takes a man like meself to win them. An' as for the rist of the bunch, let me tell you, I'll get 'em goin' an' comin', as I am a Knight of Columbus meself and will have a Jew an' a Protestant Freemason workin' for me, an' if you can beat that for an all around combination to sell electrics and get the money, I'd like to know it!"

So overcome was Pelletier that although he could not give his resourceful caller the Chicago agency, he promised to give him an opportunity, if possible, to be with the agency rather than against it.

New South Wales's Early Show Date.

The Royal Agricultural Society of Australia will hold its annual motor show at Sydney, New South Wales, from September 30th to October 6th. Thirty-two exhibitors of automobiles have secured space.

HERE'S HUPP'S NEWEST CREATION

The "R. C. H." Runabout Proves an Attractive Car at a Popular Price—Features That Will Distinguish It.

Following closely on the heels of the announcement that the Hupp Corporation, of Detroit, Mich., was preparing to enter

ers at low rotative speeds. While the bore is only $3\frac{3}{4}$ inches, the stroke is 5 inches. It is equipped with a two-bearing crank shaft, enclosed timing gears and valve stems, thermo-syphon cooling—accounting for the large radiator capacity—fly wheel type of fan and constant level splash lubrication. The Bosch magneto is mounted on the left side, while the carburetter is on the right. By this arrangement, as the

means of a coupling shaft having a universal joint at either end. The main shaft is enclosed in a torsion tube, the forward end of which is supported by a ball type of universal joint. So great is the latitude of motion permitted by the intermediate connection referred to that it is possible for the engine to be thrown as much as one inch out of line without cramping or straining the transmission.

The gearset, which is mounted in a unit type of transmission axle, is of the three-speed type, selectively actuated, and is mounted in combination bearings; the axle system including Timken and Hyatt roller mountings and plain bearings, as conditions require. One of the good features of the change gear arrangement is the use of splined, instead of squared shafts, for carrying the sliding gears. The axle housing is of one-piece construction, fitted with a removable cap in the rear. The gear housing proper is sectioned, however, the parting line being vertical, and so arranged that the components may be removed without dismounting the axle from the car.

In respect to the mechanism of control the car embodies several very modern features, including the use of left-hand drive, central gear lever, and foot-actuated brakes. The throttle is pedal controlled, and, as in standard car construction, the left pedal is used for clutch control, while that on the right applies the external members of the double rear wheel brakes. The inner expanding brakes are actuated by the clutch pedal when fully depressed.

A ratchet device is employed in this connection, which is thrown into action by a slight forward movement of the clutch



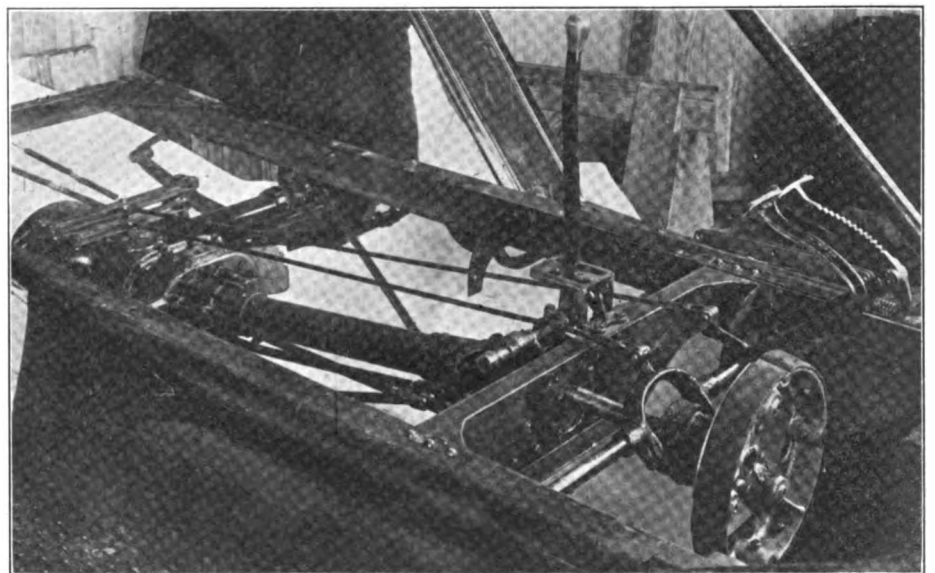
THE NEW R. C. H. RUNABOUT, PRICE \$700 WITH EQUIPMENT

the gasoline field with a new car, the details of the new R. C. H., as that product is to be designated, likewise are disclosed. It is a light four-cylinder runabout, selling at \$700 with top, windshield, oil and gas lamps, generator, horn and tool kit. In some respects it is suggestive of former ideals of R. C. Hupp, its designer, and from whose initials its name is derived. It is entirely distinctive, however, and, like the Hupp-Yeats electric, the other automobile product of the Hupp Corporation, it is unmistakable and quite striking in appearance.

Of its noteworthy external points, the large radiator and almost flat-topped hood is the most characteristic, the general appearance of the entire vehicle being in keeping with that of the larger and more impressive cars. While it is the only gasoline car at present "in the making," it is more than intimated that in due season other models will follow. The present producing plans call for an output of 500 of the new runabouts.

Embodying the recognized advantages of the block type of motor, especially with respect to the adaptability of that style of construction to light cars, the engine, which is of 22 horsepower rated output, also possesses several distinguishing features. It is of the long-stroke type, therefore embodying considerable pulling power

manufacturer points out, danger of fire is eliminated as far as stray sparks are concerned, while permitting the gas to pass along the water jackets and between the



CONTROL AND TRANSMISSION ARRANGEMENTS OF THE NEW R. C. H.

cylinders ensures its arrival at the valves in a thoroughly mingled and warmed condition.

The large diameter cone clutch is connected to the propeller shaft proper by

pedal. The consequence is that whenever the car is left standing the clutch is held out of engagement while one set of brakes is applied. This provision has the same effect as the interlocking of the clutch gear

and emergency brake and automatically prevents difficulties through attempting to crank the motor while the gears are in mesh. The brakes, it may be added, are of 10-inch diameter and 1½-inch face, Raybestos lined.

Full elliptic rear springs, 37 inches long and 1¾ inches wide are employed, a peculiar feature of their mounting being the circumstance that they are tilted forward slightly on the lower side and attached to the under side of the axle. This arrangement, in addition to lowering the rear of the chassis, tends to overcome the effect of shocks sustained by the rear wheels and so to render the vehicle easy riding. The

want of gasolene, in order to be prepared for a possible contingency when the car will not run, even while a small amount of fuel is known to be left in the tank. Occasionally, despite an indication of an apparent inch or more of fuel depth, it will be found impossible to start, either for the reason suggested or because the car is standing on a side-sloping road so that the contents of the tank drains to the end away from the outlet.

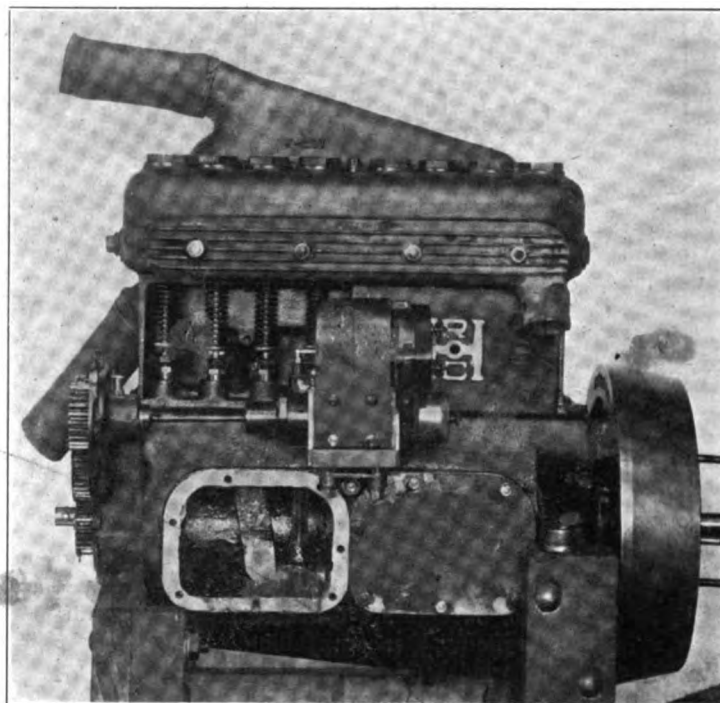
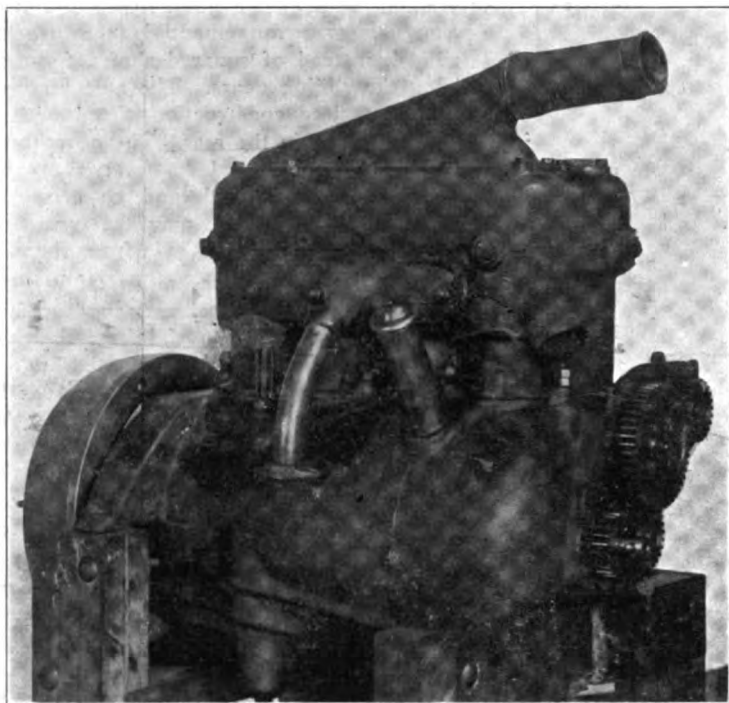
Evolution in Elmore Two-Cycle Control.

By introducing an automatic by-pass control, which is actuated by throttle movement, the two-cycle engine of the new

enclosed body with doors, but aside from body refinements and the change in engine operation noted, does not differ materially from previous models.

Hotel Clerk President Goes to Jail.

If Frank J. Dorlon had been content with his job as cashier of Hotel Manhattan, New York, where he had been employed for ten years, and had not seen in the automobile business a short cut to wealth, he might not now be in jail. Dorlon, however, saw, or thought he saw, riches in the manufacture of automobile supplies, and more specifically in the Victor Auto Supply & Mfg. Co., at 42 West Forty-third street, New



RIGHT AND LEFT VIEWS SHOWING DETAILS OF THE R. C. H. 22 HORSEPOWER MOTOR

front springs are of semi-elliptical pattern, 33 inches long and 1½ inches wide. The wheel base is 86 inches, the tread 56 inches and the tire equipment of 30 x 3-inch dimensions, all four wheels being shod with the same size tires.

In its general construction the car is distinguished by an uncommonly liberal use of drop-forgings, cheapness and accuracy of production thereby being gained, together with high ratios of strength to weight. The design has been carried through with the idea of rapid development and assemblage and the marketing of the first lot of cars, which is to be carried out by the Hupp Corporation branches, in connection with the Hupp-Yeats sales business, will be actively prosecuted.

Gasolene Tanks That Are Deceptive.

For the reason that in some cars the piping is so arranged as not to permit the very "last drop" of fuel to be drained into the carburetter, it is well to "take soundings" at some time when the engine has stopped for

Elmore roadster model, which just has been announced by the Elmore Manufacturing Co., Clyde, Ohio, is made to run with its cylinders acting in pairs when operating under half load or less. The result is that smoother action is obtained than when all four cylinders are acting independently at low speeds. The change in operation is effected by altering the application of the pumping action which is carried out by the large ends of the two-diameter pistons. Ordinarily the compression stroke of each pump cylinder is employed in forcing gas into the distributor manifold, from which it is released simultaneously to the explosion end of another cylinder; a constant volume of gas under low pressure thus being maintained in the manifold at all times. When the new by-pass is in operation, however, the cylinders work in pairs to the extent that the compression end of one cylinder feeds the explosion end of the adjoining one directly, this action being reciprocal between each group of paired cylinders. The new roadster model has an

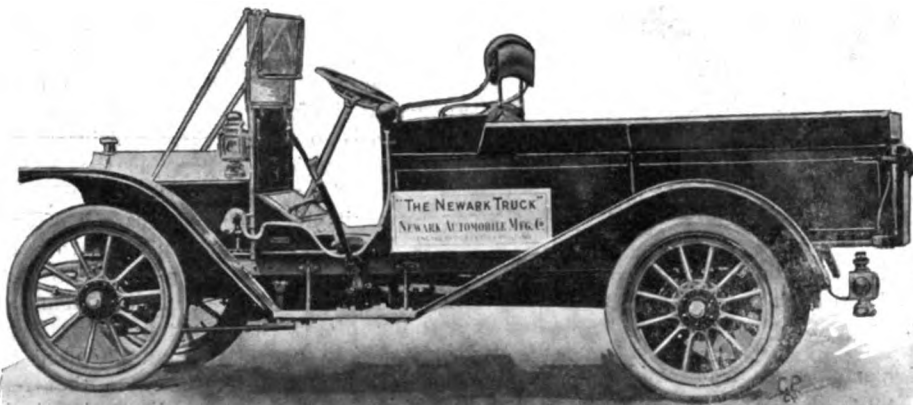
York City. He was elected its president, and usually presidents are supposed to provide money when it is needed. Apparently Dorlon's salary as a hotel cashier was not sufficient to meet the needs of the occasion, and he acquired the practice of "borrowing" from the hotel funds without permission.

As a result he was arrested on Wednesday of last week on a charge of embezzlement. It is stated that his peculations approximate \$50,000, which is "going some" even for a New York hotel clerk. How he got away with such a large amount is not explained, although it is said that he lost a considerable sum in his automobile venture. The specific charge against him is the embezzlement of \$222.37, which a patron of the hotel paid over. Dorlon, instead of placing the check to the credit of his employers, put it in the cash drawer and appropriated to his own use cash to the same amount. Shortly afterward a detective invited him to accompany him to the Tombs.

NEWARK TRUCK WITH CLASH GEARS

New Change Gear Mechanism Employed in a New Production from New Jersey—Other Features of Interest.

With the distinction of bearing its name—the "Newark" truck—in honor of its birthplace, which is New Jersey's largest city, a newcomer in the commercial vehicle field with a number of unusual features recently has been brought to light. The Newark Automobile Mfg. Co. is the name of the company which is producing the trucks, and it is organized under New Jersey laws, with capital of \$500,000.



NEWARK 20-24 H. P. TRUCK WITH DIRECT DRIVE ON ALL SPEEDS

The factory embraces a structure 100x75 feet on Bigelow street, near Frelinghuysen avenue, and though for the present operations will be confined to the assembling of 25 vehicles in order that they "may be immediately available for prospective customers," the manufacture of the trucks complete will be commenced in about two months. Percy F. Todd, who formerly was affiliated with the Dayton Motor Car Co., is the chief engineer, and building operations will be under the superintendence of Gustave F. Kalberg, one-time superintendent of the Long Arm System Co., of Cleveland; he will have as his assistant F. M. Seekell, formerly connected with the Grahowsky Power Wagon Co.

The truck itself belongs in the light delivery wagon class, being of 1,500 pounds capacity, and lists at \$1,800. The motor, which is mounted under a hood in front, is of the T-head type, with its four cylinders cast en bloc and is rated at 20-24 horsepower; the bore and stroke measure 3 9-16 and 4 3/4 inches, respectively, and it therefore conforms to the general definition of a long-stroke motor. Ignition is effected by means of a high tension Bosch magneto, with fixed spark, and the cooling water is circulated by means of a centrifugal pump.

Lubrication is by splash with a pump over system.

Differing from usual commercial car practice, a direct drive on all speeds is provided. To attain this end, a recently patented change gear mechanism which is styled the Johnson transmission and is controlled in the United States by the Newark Automobile Mfg. Co., is used. It is a clash gear system as differentiating from the usual type of sliding gears. Spur gears are placed on the differential and on a counter shaft, the latter being moved longitudinally to bring any set of gears desired opposite others in changing speeds and then moved backward and forward, throwing the gears in and out of mesh. Five gears are used to obtain three forward

and three reverse speeds with direct drive on all speeds.

The vehicle is controlled from the left side and it is claimed that the lever control system is so simple that a few hours' instruction is sufficient to enable any person of average intelligence to operate the truck. The tire equipment consists of 34x 4 1/2 inch pneumatics.

Fire Apparatus at Two Conventions.

In connection with the 1911 convention of the International Association of Fire Engineers, which is to be held at Milwaukee, Wis., September 19-22, an exhibition of fire apparatus, including various types of the rapidly growing class of automobile appliance, will be held in the Auditorium, in which building the meeting also will convene. After the close of the convention members of the association will proceed to Chicago by a specially chartered steamer, where they will attend the International Municipal Congress and Exposition, which is scheduled to take place during the two weeks of September 18-30. A second display of fire extinguishing appliances will be a feature of the municipal congress, as will a number of papers bearing on the study of fire fighting methods.

PREVENTIVES OF GREASE LEAKAGE

Holes in Gear Boxes That Serve the Purpose—Accidental Discovery and the Theory That is Involved.

That a vent hole is as necessary in gear boxes as it is in the crank cases of engines is the opinion of a motorist, who, after spending considerable time in attempting to locate the cause of an exudation of oil, quite by accident discovered the efficacy of a vent to prevent this trouble. Leaks, when they occur, and they are by no means uncommon, generally make their appearance when the car is running; the oil or other lubricant slowly but persistently oozing out around the shaft bearings and in some cases at the points where the selector rods enter the gear case.

It was a leak of this kind with which the motorist in question had to contend, and though better designed glands with stuffing boxes were fitted, and he even went so far as to make the gear case air-tight, so that it would hold "some pressure of air," such measures were of no avail. In describing the accident by means of which the remedy was discovered and explaining the apparent reason for the cure, he says:

"The lid of the box was held in place by means of eight studs and nuts and no doubt my experiments and investigations in the matter of the leak, which necessitated the removal of the lid a goodly number of times, had weakened the thread in the aluminum casting, for finally when tightening the nuts holding down the lid one of the studs pulled out of the box, leaving, of course, a clear hole through to the interior. Hastily I made a plug of wood for this hole, and soon afterward started off for a day's run. Next morning I found that the plug of wood was gone, but a matter which caused me far greater surprise was to find that no oil, or practically none, had leaked out of the box as usual.

After the car has been running for some little time," he opines, in explaining the reason for the phenomenon, "the heat of the engine, and that generated by the friction of the gear wheels and the foot brake, raises the temperature of the lubricant in the gear box; consequently the air within the box expands and causes a slight pressure to be set up, which drives the oil out of the bearings. The pressure may be only a pound or two above atmospheric, but even that is sufficient to carry the oil with it as it gradually escapes between the shafts and bearings.

"After my discovery, I made several runs during which the stud was left out of its position, and the amount of oil that leaked out was absolutely negligible, a mere film as compared to the tablespoonful after each day's run of yore. I have now fitted a

pressure release valve in the lid of the gear box, similar to one on the engine crank case. This prevents oil being thrown through the hole or into it, and thus blocking the passage."

The valve, he describes as being in effect merely a baffle plate and vent, and he says that while it is not absolutely necessary—a hole about one-quarter of an inch in diameter being sufficient—when used, care should be taken not to place it in a line with any of the gear pinions, in order to lessen the likelihood of its becoming clogged.

The conclusions which are reached are interesting inasmuch as the reasons and the remedy given for the condition are unusual. Nothing is said about the location of the gear box, or the temperature of it before and after running, nor is the pressure obtained mentioned, and it is not quite clear how a sufficient rise in temperature could occur unless there was something radically wrong with the bearings in the gear box.

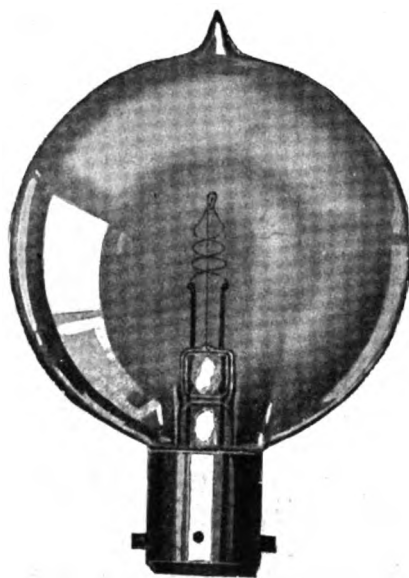
If the clutch and gear box were a unit, which construction is fairly common, and providing the clutch were slipped continually, the resultant rise in temperature might be sufficient to cause the increased air pressure. If the gear box was separate and carried in the waist of the chassis it is unlikely that the heat of the engine would have material effect because of the almost inevitable universal joint between it and the gear box and the improbability of the heat being conducted past it to the gear box; for the same reason it is difficult to see how the heat from the brakes would have any great effect.

But the fact remains that the vent effected a cure, apparently by decreasing the pressure in the gear box, and, unless as stated, the clutch and the gear box formed a unit, it appears that the bearings on the driving and lay shafts required immediate attention.

Improving the Electric Headlight.

By altering the position of the tungsten filament coil so that its axis lies lengthwise in the lamp, instead of across it, an improvement in electric headlight construction has been brought about, which not only assists in concentrating the rays but is of further benefit in adjusting the bulb to the proper focus of the reflector. This innovation has been adopted in the new Edison Mazda six-volt headlight lamps which the General Electric Co., of Schenectady, N. Y., is bringing out and which is one of a series of new Edison Mazda lamps constructed to withstand the rigorous demands of automobile and train lighting services. The new headlights, the appearance of which is indicated by the accompanying illustration, are produced in 15, 18, 21 and 24-watt sizes, with bulbs 2 1/16 inches in diameter, fitted with Edi-Swan candelabra bases. The 15-watt size of lamp will illuminate the road to a distance of 2,000 feet ahead of the car. The drawn-

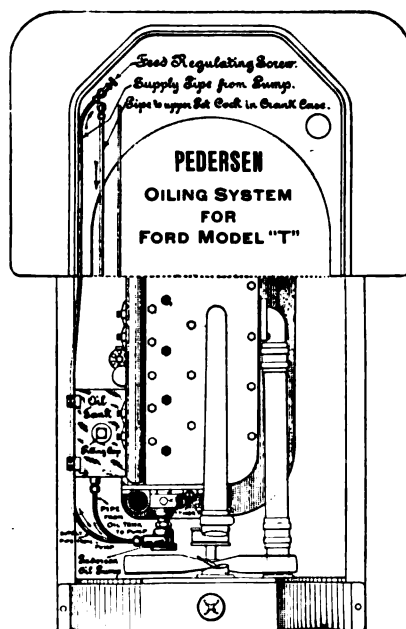
wire tungsten filament affords three times the illumination for the same current consumption as the carbon filament and effects a two-thirds reduction in the size and weight of accessory apparatus. The new



line of lamps is made in six-volt sizes for side and tail light use as well as for headlights.

Pederson's Latest Lubricating System.

In addition to its several other lubricating systems, the Pederson Lubricator Co., of New York City, has developed a special arrangement of parts designed for the continuous replenishment of oil in the



crank case of a splash and natural circulating oiling system, which is particularly adapted to installation on Ford cars. The system includes a supply tank, pump, sight-feed glass, regulator and the necessary piping. The tank is intended to be mounted on the under side of the hood base strip, while the pump is neatly attached to the

outer end of the timer shaft, thereby incidentally effecting the continuous lubrication of that important member. The regulating screw and sight-feed glass are mounted on the dash, while the delivery pipe from the sight-feed is connected to the upper petcock in the crank case. By making proper adjustment of the regulating screw just sufficient oil may be fed to the engine base to replace that used up by ordinary running conditions, so that the level of oil in the base need not be watched once the system is in working order; the only care required in connection with oiling being to see that the external reservoir is kept filled at all times. The illustration shows the general arrangement of the system.

Emergency Repairs of Electric Bulbs.

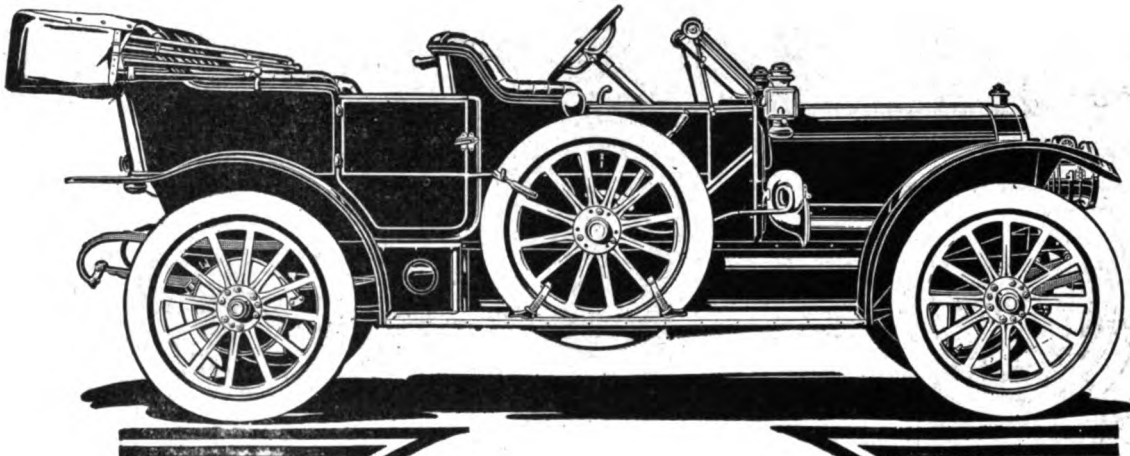
Though the usual method of procedure in the case of miniature electric bulbs which apparently have passed the useful stage, as indicated by a rupture of the filament, is to discard them and insert new ones, it occasionally happens that a bulb "burns out" on the road where a new one is not available, and in this case it often is possible, by careful manipulation, to repair them temporarily. The method, however, is only applicable to those bulbs which have metallic filaments, tungsten lamps being those which are most commonly used and which respond most readily to the treatment. The modus operandi consists in inserting the bulb in the socket with the current switched on, and by a series of gentle taps causing the broken ends of the filament to touch when the momentary incandescence will, in nine cases out of ten, cause the ends to weld together. The only drawback to the repair is that the tapping process must often be repeated each time after the lamp has been extinguished, owing to the fact that the alternate expansion and contraction of the filament tends to cleave the joint. It sometimes is possible to make the repair of a more permanent nature by lighting the lamp for an instant—not longer, or the result will be fatal—at a very slightly higher voltage, when the increased incandescence will cause a more perfect weld. If the lamp normally is for four volts, the increased voltage should not be more than six volts, higher voltage lamps being treated correspondingly.

One Way to Avoid Spark Plug Trouble.

As has been pointed out recently, one very good reason for the absence of spark plug trouble today, as compared with the period of three or four years ago, is that motorists have learned to let their spark plugs alone. The moral is plain to see. When a plug is suspected of giving trouble never attempt to mend it on the road. Replace it with a fresh one and do the repairing some other time and under more favorable circumstances. The rule holds good even if the difficulty appears to be nothing more than a loss of compression due to leaky packing.

Rambler

Motor Cars



Rambler
Sixty-four

RAMBLER big wheels and tires are a great advantage in city as well as in country driving. They not only afford added comfort, but tests have shown that tires even an inch larger in diameter and half an inch greater in width will last twice as long. Small wheels drop into the holes in the roadway, adding greatly to the discomfort and wear on tires. Big wheels and tires glide lightly over depressions, providing wide cushioning surface for comfort and tire economy. This advantage is only one of many enjoyed by Rambler owners—features of quality, comfort, safety and convenience. The Offset Crank Shaft makes possible slow driving in crowded traffic, and climbing hills easy. The Straight Line Drive saves power, the Spare Wheel saves tire worry, Rambler brakes provide complete safety, and Rambler service assures satisfaction.

The Thomas B. Jeffery Company

Main Office and Factory, Kenosha, Wisconsin
Branches: Chicago, Boston, New York,
Milwaukee, Cleveland, San Francisco

A telephone message to the nearest Rambler representative will bring this car to your door for inspection. The new catalogue is ready. Send for it.



Rambler wheels glide lightly
over the rough places



Small wheels drop into depres-
sions in the road

THREE WHEEL IDEA NEWLY APPLIED

Martin's Tractor for the Conversion of Horse-Drawn Vehicles—Fire Apparatus Used for a Demonstration.

With the object of testing the efficiency of converted horse-drawn apparatus, the fire department of the city of Springfield, Mass., has equipped a water tower with a Martin tractor, and is preparing to put it

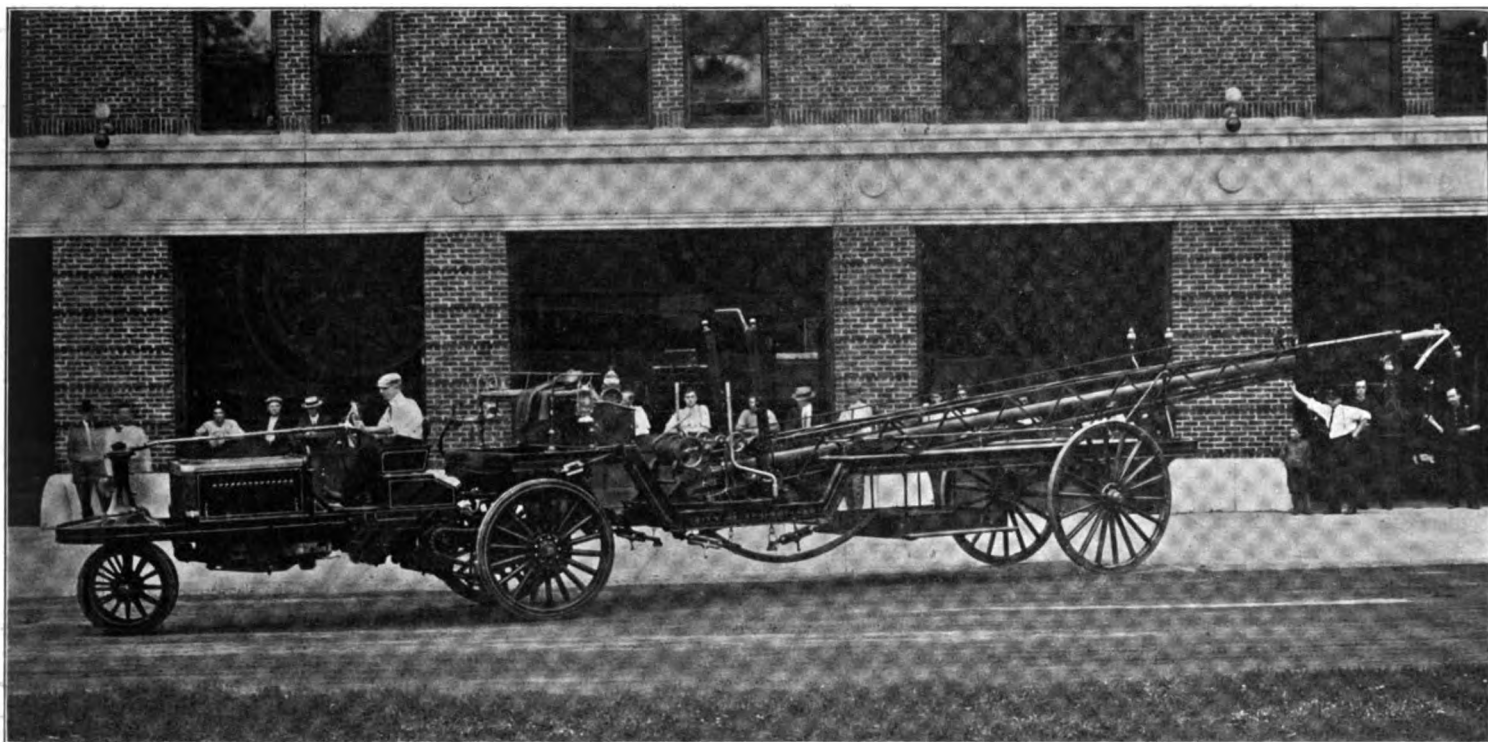
driven by side chains, and which replace the front wheels of the water tower. The front wheel of the tractor is of the dual type, is pivoted, and guided through bevel gearing and a long, nearly horizontal steering column and hand wheel. The mechanism is exceedingly simple and such is the steering action accomplished by the single front wheel that the entire piece of apparatus can be turned in exceedingly small radius.

Illustrative of this point, the smaller of

right angles to the trailer, the length of the latter really limits the action of the system as a whole. Absence of skidding and slippage, better steering control, economy of first cost and economy of upkeep are other advantages claimed for the system.

Rare Trouble Due to Radiator Pipe.

That the overflow pipe of a radiator, unless carefully designed, may be the cause of an unusual species of trouble, is illustrated in the experience of a motorist who



THE MARTIN TRACTOR ATTACHED TO THE SPRINGFIELD (MASS.) WATER TOWER

into routine service. The tractor, which is of the three-wheeled pattern, is the invention of Charles H. Martin, who formerly was associated with the R. L. Morgan Co., of Worcester, Mass., but who has now completed arrangements with the Knox Automobile Co., of Springfield, to manufacture the tractor. The marketing of the product will, however, be undertaken by a separate company, which is now being formed. The new water tower already has been tested by the fire department, and is said to have shown remarkable ease of handling and general efficiency.

As far as the fire apparatus itself is concerned, the arrangement is the same as with standard horse equipment. The tractor merely replaces the horses, the assembly thus falling in the so-called semi-trailer class. The tractor is not unlike that which Martin some time ago developed for general purposes, and which was designed to be applied to any horse-drawn vehicle. As the accompanying illustrations show, the motor and transmission mechanism are mounted on a triangular frame which is supported in front by a single wheel, and in the rear by two wheels, which are

the two pictures shows the water tower being turned in an ordinary street. The street is 30 feet wide and the over-all length of the apparatus is 57 feet. As the tractor can be turned in twice its own length, merely pivoting about the rear wheels and driving through the differential, and as the entire machine may be swung at



TURNING IN 30 FOOT STREET

spent considerable time in diagnosing the case properly. After running for five or six miles it was noticed that a large quantity of water issued from the overflow pipe. This was put down to overheating and to prevent trouble from this cause, the radiator immediately was refilled. "The true cause of this peculiarity was not overheating, however," he states, "but was due to the shape of the continuation of the overflow pipe within the radiator where it extended downward for some five or six inches, forming an inverted U with the highest part of the curved tube slightly higher than the high water mark in the radiator. After running a few miles, with a cool radiator, the heat caused the water to expand and the excess, as usual, found exit through the overflow pipe, but, owing to the inside end of the pipe being considerably below the level of the water, the slightest quantity overflowing set up a siphoning effect, and this was continued until the water within the radiator had fallen below the interior end of the overflow pipe. The remedy was, of course, to remove the surplus length of pipe inside the radiator."



994,237. Divisible Rim. Frederic R. Barker, Boston, and Joseph Greenwood, Walpole, Mass. Filed Aug. 24, 1910. Serial No. 578,760.

1. The combination of a rim provided with a slot, an expansible and contractible bead provided with a pair of lugs extending through said slot, and lever means fulcrumed on said rim and normally engaging one of said lugs as a fulcrum for drawing said lugs toward each other thereby to contract said bead.

994,318. Pivoted Front Steering Truck. Pliny E. Holt, Stockton, Cal. Filed July 1, 1909. Serial No. 505,387.

1. In a tractor a main frame composed of a rectangular frame and a triangular frame having its apex extended across and beyond the said rectangular frame; supporting trucks rigidly fixed to the base beam of the triangular frame and also to a transverse beam rigidly connecting the sides of said triangular frame; a steering frame hinged to said triangular frame and having a vertical swing therefrom; and buffer springs attached to said steering frame and adapted to bear against the upper and lower sides of said triangular frame.

994,367. Changeable Drive Mechanism for Automobiles. Claude R. Basford, San Francisco, Cal., assignor of three-eighths to Walter R. Blodgett, Willets, Cal., and two-eighths to C. A. Phenegar, Oakland, Cal. Filed June 23, 1909. Serial No. 503,851.

1. In a speed changing drive mechanism for automobiles, the combination of a shaft, a changeable speed disk loose on the shaft, a differential gear casing mounted on the shaft and connected to the changeable speed disk, a drive shaft extending transversely of the first mentioned shaft, separated pinions loosely mounted on the drive shaft, the changeable speed disk having a plurality of rings, one for each of said pinions, slidable crown clutches for locking the loose pinions to the drive shaft, and a link connection between the crown clutches extending through said pinions.

994,370. Device for Starting Motors on Motor Cars from the Driver's Seat or Foot Board. Samuel Howard Boswell, Norwich, England. Filed July 10, 1909. Serial No. 506,976.

A device for starting motors on motor cars, comprising in combination, a ratchet wheel secured to the motor shaft, a plate pivoted on said shaft, a pawl carried by said plate and adapted to engage said ratchet wheel, a foot rod connected to said plate, a heel on said foot rod, a lever pivoted on said plate and adapted to be engaged by said heel, a rod operable by said lever and connected to said pawl and a spring surrounding said rod, substantially as and for the purpose described.

994,389. Attachment for Gas Engine Crank Cases. Edmund E. Hans, Minneapolis, Minn. Filed Apr. 5, 1910. Serial No. 553,665.

1. The combination, with a motor driven vehicle having a crank case adapted to con-

tain a supply of oil, of an indicator hand and dial, means for forcing oil into said crank case, a float arranged within said crank case and means operatively connecting said indicator hand with said float.

994,418. Automobile Wheel. William Allen McCauley, Brooklyn, N. Y. Filed Aug. 6, 1908. Serial No. 447,293.

An automobile wheel having a deep grooved rim provided with square upper edges and spaced oppositely disposed apertured offset portions, said rim forming an air chamber, a rubber hoop arranged over said rim provided with openings registering with the apertures of said offset portions, said hoop being provided with a central annularly grooved rib, a flexible tube filled with flexible material arranged in the groove of said rib, a segmental ring arranged on said hoop at each side of said rib provided with openings registering with the openings of said hoop, and bolts passing through the openings of said rings, hoop and offset portions of the rim for clamping said hoop over said rim to form an air tight joint, said rings extending up alongside of said flexible tube, for holding the same in position.

994,428. Controlling Mechanism for Motor Vehicles. Charles Schmidt, Cleveland, Ohio, assignor, by mesne assignments, to Packard Motor Car Company, Detroit, Mich., a Corporation of Michigan. Filed Oct. 12, 1905. Serial No. 282,512.

1. In a motor vehicle, the combination with a fixed bracket, of two levers arranged on opposite sides of the bracket, a part carried by the bracket and adapted to interlock with each lever, and means for normally holding said part in engagement with one of said levers, whereby the other lever is normally free.

994,452. Adjustable Bearing. Edward J. Frost, Jackson, Mich. Filed Mar. 21, 1911. Serial No. 615,967.

1. The combination with a rigid frame, a plurality of projections formed thereon having aligned semi-cylindrical bores, rings mounted in said bores and provided with helical grooves, U-shaped yokes extending around said rings in said grooves and having their ends projecting through holes in said frame, nuts on the ends of said yokes, and bearings mounted in said rings.

994,651. Flexible Metallic Tire. William C. Nicholson, Crown Point, Ind. Filed Sept. 29, 1910. Serial No. 584,429.

1. The combination with a wheel having a felly, of a metallic rim therefor provided with side slots and having lugs provided with transverse slots, a series of outwardly curved springs held in the slots in said lugs, a series of stationary plates disposed in the side slots and secured to the felly, a series of movable sections, slotted links pivotally securing said sections together, guide plates secured on each side of said sections and adapted to slide on the outside of said stationary plates, said guide plates being provided with inclined slots and with parallel slots, bolts passing through said inclined slots and through the ends of said curved springs, strips disposed outside of said guide plates, and bolts for holding said strips in position, said last mentioned bolts passing through the parallel slots.

994,658. Carburetting System. Henry M. Reichenbach, Yonkers, N. Y., assignors to Reichenbach Laboratories Co., Chicago, Ill., a Corporation of Illinois. Filed Oct. 19, 1909. Serial No. 523,534.

1. The combination of an internal combustion engine and a carburetting system therefor, including a compartment provided with a throttle valve, heating devices supported by said compartment, heat insulating means separating said heating devices from said compartment, a feeder for supplying liquid fuel to said heating devices, said heating devices being heated by the exhaust from the engine, and means for varying the flow of said exhaust fluid through said heating devices depending upon the suction of the engine, substantially as described.

994,673. Spark Plug. William Hagstrom, Emanuel Hagstrom, and Gustaf Hagstrom, Lindsborg, Kan., assignors to Hagstrom Brothers Manufacturing Company, Lindsborg, Kan., a Corporation of Kansas. Filed Nov. 24, 1909. Serial No. 529,663.

1. In a spark plug, the combination with a casing having an annular inwardly-extending flange at its lower end, and an insulating body carried by the casing, of a central stem supported by the insulating body and having one end projecting through and beyond the lower end of the casing to form a sparking point, said central stem having thereon within the casing and adjacent the lower end of the insulating body and inverted cup-shaped guard serving to prevent conducting bodies from being conveyed on said stem beyond such guard, and a porcelain washer surrounding the stem and supported by the annular flange at the lower end of said casing, said washer having concave lower and upper faces.

994,684. Resilient Wheel. William F. Masters, New York, N. Y. Filed July 7, 1910. Serial No. 570,572.

1. In a wheel, a wheel body, a tire having a limited rotary movement relatively to the wheel body, sets of bearings arranged at intervals between the tire and wheel body, each set of bearings having opposed concave bearing faces, and a tire tension roller arranged between the bearing faces of each set of bearings and operated by the limited rotary movement between the wheel body and tire.

994,695. Illuminating Device for Vehicles. Seymour Suits, Newark, N. J. assignor of one-half to Peter C. Brashear, New York, N. Y. Filed Feb. 14, 1910. Serial No. 543,714.

1. The combination with an automobile provided with a front pair of wheels capable of turning laterally with relation to the body of the automobile, of a stud or post erected upon the frame of the automobile, a sleeve or socket piece secured to said post, a pivot pin or plug rotatably mounted in said socket piece above said post, means for securing said pivot pin or plug in said socket piece against upward displacement, a yoke attached to said pivot pin or plug, a lamp secured to said yoke and means connected with the pivot pin or plug above said post for turning said pivot pin in its socket, substantially as described.

994,969. Armor for Tires. John M. Barnett, Oskaloosa, Iowa. Filed June 8, 1910. Serial No. 565,719.

1. An armor for tires, embodying a chain netting adapted to inclose the tread of the tire and having a plurality of blocks incorporated therein, a plurality of overlapping armor plates, and fastening means for detachably securing the armor plates to the respective blocks.

Iowans Choose Officers; Discuss Roads.

President Dickinson, of the Kossuth County Automobile Association, will continue to direct the affairs of the motorists of Kossuth county, Iowa, for the ensuing year. He was re-elected president at the annual meeting held at Algona, the county seat. The other officers are: Vice-president, Ellis McWhorter, of Burt; secretary, E. V. Swetting, of Algona; treasurer, Mayor J. W. Wadsworth, of Algona. Under the new motor laws of Iowa, each township in the state receives a part of the tax collected from motorists, which is to be used for roads under the direction of the county supervisors. As Kossuth county has received \$1,611, the association has appointed the following committee to confer with the supervisors: President Dickinson, Secretary Swetting and Clarence Paine, of Algona; M. J. Mann, Burt; J. J. Warwick, Bancroft; E. G. Rich, Ledyard; Olaf Pearson, Swea City; F. C. Newall, Fenton; J. M. Blanchard, Lone Rock; J. S. Cullen, Whittemore; Nels Johnson, Sexton; Julius Kuns, Wesley; Clark Armstrong, Yitanka; M. Walsutt, Germania; W. E. Kyler, Lu Verne; Edward Rahm, St. Benedict.

The law under which the money will be spent provides that it will be used for graveling, surfacing and macadamizing roads; dragging same and putting in cement culverts. Although its purpose is good it has

caused much dissatisfaction because the tax is apportioned to the counties in accordance with the number of townships. Some inequalities exist by reason of such apportionment, as many populous counties have a small number of townships. The first collection brought the state \$111,292.65, of which 15 per cent. is retained by the state treasurer to defray the expense of issuing licenses. Kossuth county has 28 townships, and in accordance with the division each received \$57.57, or at total of \$1,600 for the county.

Columbus Discovers Some "Easy Money."

Hereafter everything running on wheels in the city of Columbus, Ind., will have to pay a license fee and a high one—that is, everything excepting baby carriages and bicycles—if the ordinance introduced in the city council succeeds in passing. According to its provisions automobiles would have to pay \$15 or \$20 annually; motor trucks \$10; motorcycles \$5; two-horse trucks and drays \$5; one-horse delivery wagons, \$3; two-horse pleasure vehicles \$3, and one-horse carriages and buggies \$1. As is but natural, protests are coming thick and fast from all directions, particularly from automobile owners, and it is likely that the measure will be considerably amended before it finally is enacted and becomes a law.

Made Farmer Pay for Calf's Damage.

At last the worm has turned! For years past the motorist has been made the victim of the shrewd farmer who had a useless horse or a sick cow, and has had to settle for heavy "damages" said to have been inflicted by that modern juggernaut, the automobile. But finally the worm did turn, and—strange as it may seem—the farmer paid the damages and the motorist drove away \$10 richer than before the accident. A. P. Veroni, of Watseka, Ill., was the valiant knight to accomplish the unheard of. A week ago he happened to run down a stray colt which was running zigzag across the highway, and broke its leg—\$50 damages to the owner. Three days later he again came that way and a sickly-looking calf meandered in front of the car with the natural result that it was knocked into the ditch. But in the collision the fender of the car was bent and one of the lamps broken. Before the owner of the calf could say anything, the motorist prepared a bill for damages against him and demanded \$10. The startled farmer promptly paid up.

Residents of New South Wales, one of the six colonies or original states of Australia, at present have over 3,000 motor cars in active operation. The licensed drivers of motor vehicles according to recent registrations, number 4,250.

FIAT


"THE MASTER CAR"

35 H. P.—\$4,500, Open Bodies; \$5,500, Limousine Bodies
(Completely Equipped.)

The Fiat Agency Policy is One of Permanency

POUGHKEEPSIE **F·I·A·T** NEW YORK

FIFTEENTH YEAR



SHORT SERIES

IN high efficiency—first cost—dependability
—and in practical value—the Hyatt Roller Bearing is superior.

Hyatt Roller Bearing Co., Detroit, Michigan

KISSELKAR

KisselKars maintain the reputation as the conspicuous automobile values in America today—Six cyl., 60 H.P., \$3000—fully equipped; Four cyl., 50 H.P., \$2350; 40 H.P., \$1850; 30 H.P., \$1500; write for free portfolio.

159 Kissel Ave., Hartford, Wis.
Branches and Agencies everywhere



Kissel Motor Car Co.

Every Inch a Car

SHAWMUT TIRES

SOLD EVERYWHERE

SHAWMUT TIRE CO., Boston, Mass.

New Clubs and Club Elections.

The Hutchinson Automobile Club, of Hutchinson, Kan., has elected the following officers for the ensuing year: President, L. E. Fontron; vice-president, Rev. Mr. Stevens; secretary, W. G. Barr; treasurer, Fred C. French.

Motorists of South Haven, Mich., have organized the South Haven Automobile Club with the following officers for the ensuing year: President, Dr. C. F. Young; vice-president, C. W. Williams; secretary, E. S. Rauworth; treasurer, L. E. Parsons.

Motorists of Terre Haute, Ind., have organized the Terre Haute Automobile Club, which will affiliate with the American Automobile Association. All automobile owners of Vigo county have been invited to become charter members, and until each precinct is heard from only temporary officers will have charge. They are: Dan Lane, chairman; Dr. Patton, secretary.

Under the title of the Union County Automobile Club, motorists of Beresford, South Dakota, have organized to affiliate with the state organization. For the present temporary officers will be in charge, as invitations have been extended to owners of automobiles in the county to join the club, and when each precinct is heard from a general meeting will be held. The officers are: President, Ole Ofstad; secretary, F. B. Marquette.

Twenty-five motorists of Yorktown, Ill., have organized the Kendall County Automobile Club, which will affiliate with the state organization. Only temporary officers have been elected as it is the intention to bring all motorists of Kendall county into the organization and have each district represented by a vice-president. The temporary officials are: President, Dr. R. A. McClelland; secretary, Dr. Frazier; treasurer, W. R. Newton.

Where Motor Car Replaces the Rifle.

Down on the plains of Texas, north of Big Springs, is Equash Ranch, owned by S. S. Slaughter Co. R. L. Slaughter, or as he is more familiarly called, "Bob" Slaughter, merchant, club man, and all around good fellow, of Dallas, Texas, is president and general manager of the ranch and incidentally interested in automobiles. However, his favorite sport is hunting animals and of late he has abandoned the horse for trips and taken to motor power. It is against the law in the Lone Star State to shoot antelope, and Slaughter, being a law-abiding citizen, wouldn't shoot one for anything. So with giving up the horse he decorated the house with his guns. Now he simply gets out his trusty automobile, loads it with gasoline and a lariat, and goes out after the game. One end of the lariat is tied to the steering post of the car. When he sights a bunch of antelope, he simply throws the throttle wide open, goes down among them, guides the machine with one hand while the other handles the rope.

To Automobile and Accessory Manufacturers

Is your advertising department in need of an aggressive young advertising man—one with a "common-sense" idea of advertising, in addition to a thorough, efficient knowledge of printing and publishing?

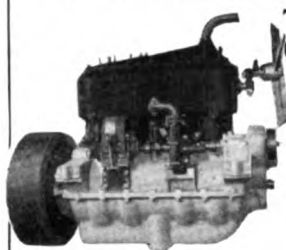
For the past six years I have been connected with a weekly automobile journal. Four years were spent in the editorial department, and two years as business and adv. manager. This publishing experience has been supplemented by an extended study of advertising, including copy-writing, space-buying, value of mediums, circulation, publicity methods, etc.

Previous to entering the publishing field, a complete understanding of printing methods was obtained through six years' actual work as a practical printer.

My record shows steady advancement won through efficiency, loyalty and integrity.

A permanent connection is desired—one that means a good future in return for meritorious service. The best of references can be furnished.

**Address, S. A. W., Motor World
Box 649
New York City**

"CONTINENTAL"

Continental Model "C"

The Motor of
QUALITY

It adds selling
value to your
car.

The name is
Standard
Everywhere.

20 to 60 H. P.

Write for catalog

Continental Motor Mfg. Co.

Muskegon, Mich.

FACTORY REPRESENTATIVES
K. F. PETERSON, 122 Michigan B'vd, Chicago
L. D. BOLTON, 1810 Ford Building, Detroit

**HEAT-TREATED
AUTOMOBILE FRAMES**

CHROME NICKEL STEELS AND OUR
OWN SPECIAL ALLOYS USED EXCLUSIVELY

PARISH MAN'G CO.

PROMPT DELIVERIES READING, PA.

ANDERSON

Glass-and-Steel Spark Plugs

ANDERSON SPARK PLUG CO.

Washington, D. C.

The MOTT WHEEL WORKS

Utica, N. Y.

Axles, Hubs and Rims

R. B. ABBOTT SALES CO., Sales Agents
Majestic Building, Detroit

WANTS AND FOR SALE

15 cents per line of seven words, cash with order.
In capitals, 25 cents per line.

REBUILT THOMAS CARS—The Thomas Motor Car Company has for sale a few factory rebuilt cars which carry the same guaranty as new ones. Most of these cars have been all torn down, worn parts replaced, the chassis reassembled, and the body repainted and refinished. Two particularly interesting bargains are a 70 H. P. Six Cylinder Seven Passenger Touring Car for \$2,250* (original price, \$6,000), and a Thomas Model 36 (not rebuilt), for \$600. This is the model which made the trip around the world. Other attractive propositions are listed in our descriptive bulletins, giving specific information regarding actual condition of each car. Write us, stating your wants. E. R. THOMAS MOTOR CAR COMPANY, Buffalo, N. Y.

FOR SALE—Columbia five-passenger touring car, including full modern equipment. Opportunity to secure reasonably, a very attractive automobile, in exceptionally fine mechanical condition. Demonstration free and guaranteed. MR. CUTLER, 239 West 64th St., New York City.

**Perfection
Spring Company**

**SPECIALISTS IN
SPRING
SUSPENSION
HIGH GRADE ONLY**

Cleveland, Ohio

CUSHIONS
AND OTHER LEATHER TRIMMINGS
FOR COMMERCIAL AND PLEASURE CARS
INQUIRIES SOLICITED
SNOW-MOSS CO.
127 W. 49TH ST. NEW YORK

**Mosler
Spit-Fire**
Are The Best
A. R. MOSLER & CO.
163 WEST 29th STREET
NEW YORK CITY

**Aluminum Bodies
THE SPRINGFIELD TOP**
(Pat. 1895)

SPRINGFIELD METAL BODY COMPANY
366 Birnie Avenue, Springfield, Mass.

Leading Motor Car Makers of America

The United States Motor Company

Catalog and full particulars
on request.

Columbia
with
Silent Knight Motor

Builder of Motor Cars
for Seventeen Years.

THE COLUMBIA MOTOR CAR COMPANY ^{61st STREET and B'WAY} NEW YORK CITY
Division of UNITED STATES MOTOR COMPANY

Stoddard-Dayton

Catalog and full particulars
on request.

Built for touring and all-around use, but with worlds of speed.

DAYTON MOTOR CAR COMPANY ^{61st STREET and B'WAY} NEW YORK CITY
Division of UNITED STATES MOTOR COMPANY

A practical car—a utility
car—much more than
a pleasure car.

Maxwell

Catalog and full particulars
on request.

MAXWELL-BRISCOE MOTOR COMPANY ^{61st STREET and B'WAY} NEW YORK CITY
Division of UNITED STATES MOTOR COMPANY

Liberty - Brush
\$350

*Spells Freedom for
the horse.*

*Everyman's
Car*

Catalog and full particulars on request.

Standard Brush
Runabout, \$450

*Adaptable to a
hundred uses.*

THE BRUSH RUNABOUT COMPANY ^{61st STREET and B'WAY} NEW YORK CITY
Division of UNITED STATES MOTOR COMPANY

Catalog and full
particulars on request.

Sampson
Freight and Delivery Motors

Makes your de-
livery system
up-to-date.

ALDEN SAMPSON MANUFACTURING COMPANY ^{61st STREET and B'WAY} NEW YORK CITY
Division of UNITED STATES MOTOR COMPANY

Catalog and full
particulars on request.

Sampson 35

The best touring
car at the price.

ALDEN SAMPSON MANUFACTURING COMPANY ^{61st STREET and B'WAY} NEW YORK CITY
Division of UNITED STATES MOTOR COMPANY

THE MOTOR WORLD

Vol. XXVIII.

New York, U. S. A., Thursday, September 14, 1911.

No. 12

"INDEPENDENT" SHOW ABANDONED

A. M. A. A. Forfeits Lease to Grand Central Palace—Its Office Closed and Its President Joins N. A. A. M.

The Automobile Manufacturers Association of America will hold no show in Grand Central Palace, New York, during the first week of January next, and probably not at any other time. Although it secured a lease of the building soon after its organization in January last, it has failed to meet required payments and the fate of the organization itself appears to be in doubt.

During the last month the report has been current in inner circles that the so-called independent show had been, or would be, abandoned, but two weeks since, when a Motor World man questioned Grand Central Palace officials, it was stated that payments on the lease had been made and that it was being maintained. Yesterday, however, Captain J. A. H. Dressel, assistant manager of the Palace, admitted that the lease had gone by default and that prospects of the show being held were practically nil.

No information regarding the matter was obtainable at the office of the A. M. A. A., in the Night and Day Bank Building, which has been in charge of Herbert Longendyke, the general manager of the association. The office was securely locked when a Motor World man called yesterday and the superintendent of the building stated that Mr. Longendyke had not put in an appearance for two weeks, and that the young woman who usually was present in the office had not been around for nearly a month.

The fact that only last week Col. T. A. Campbell, president of the Imperial Auto Co., of Jackson, Mich., who is president also of the A. M. A. A., was elected to membership in the National Association of Automobile Manufacturers conveyed its own suggestion, which was strengthened

by the fact that several of the members of the Automobile Manufacturers Association of America who had been disqualified from participation in sanctioned shows because of having exhibited in the "independent" show, which was held in the Palace last January, previously had applied to the N. A. A. M. for reinstatement and had had their disabilities removed.

The A. M. A. A. grew out of this last Palace show, and, like the show itself, it was brought about by Mr. Longendyke and his partners, who publish a carriage trade journal in Troy, N. Y. It was formed to take the place of the American Motor Car Manufacturers Association and to oppose the Selden patent, but only a few days after its organization the United States Court of Appeals in New York declared that patent invalid, thereby cutting much of the ground from under the new organization. Despite the fact, some of its officials at least decided to conduct another show and secured the necessary lease, but when some three months since the National Association of Automobile Manufacturers also secured a lease of the Palace for a January show immediately following the close of the "independent" one, the cause of the Automobile Manufacturers Association of America was still further weakened and the abandonment of its project caused no surprise to those able to read the signs.

With the A. M. A. A. out of the way, it is extremely probable that the N. A. A. M. function at the Palace will be changed so that it will be run concurrent with the Board of Trade exhibit in Madison Square Garden.

Shelbyville May Get Another Factory.

John Clark, former superintendent of the Clark Motor Car Co., of Shelbyville, Ind., has practically completed the organization in that city of the Shelby Motor Car and Truck Co. Clark has in view the manufacture of a line of popular priced pleasure cars and a line of commercial vehicles which will embrace everything from a \$600 light wagon to trucks of five-ton capacity.

N. A. A. M. OPENS WIDE ITS DOOR

Fourteen New Members Are Admitted and Disabilities of Two Makers Removed—Audiences Granted Three Callers.

At the regular meeting of the executive committee of the National Association of Automobile Manufacturers, in New York, on the 6th inst., the door of the organization was swung open much wider than has been the case in quite an extended period of time. Which is to say, that no less than 14 new members were admitted and added to the roll. Of the number, by far the most surprising and significant was Col. T. A. Campbell, representing the Imperial Auto Co., of Jackson, Mich., of which he is president, and who also is president of the Automobile Manufacturers Association of America, which was formed in January last and under whose auspices the now abandoned show in the new Grand Central Palace in New York had been billed to occur during the first week in January next, immediately preceding the N. A. A. M. show in the same building.

The others elected to membership in the N. A. A. M. were as follows: J. I. Hanley, representing American Motors Co., Indianapolis, Ind.; G. A. Matthews, representing Jackson Automobile Co., Jackson, Mich.; C. H. Walters, representing DeTamble Motors Co., Anderson, Ind.; F. H. Dodge, representing Ohio Electric Car Co., Toledo, Ohio; A. B. C. Hardy, representing Marquette Motor Co., Saginaw, Mich.; George E. Daniels, representing Oakland Motor Car Co., Pontiac, Mich.; T. F. Hart, representing Inter-State Automobile Co., Muncie, Ind.; Charles D. Hastings, representing Hupp Motor Car Co., Detroit; D. A. Shaw, representing Simplex Motor Car Co., Mishawaka, Ind.; W. J. Groves, representing Mack Bros. Motor Car Co., Allentown, Pa.; R. C. Hupp, representing Hupp Corporation, Detroit; Rauch & Lang Carriage Co., Cleveland, Ohio; Fred W. Haynes,

representing Regal Motor Car Co., Detroit.

Two of the old members changed their representatives in the association, J. T. Corl replacing George A. Horner as the representative of the Rapid Motor Vehicle Co., and Charles W. Churchill succeeding Thomas Henderson as the representative of the Winton Motor Carriage Co. Mr. Henderson, who is retiring from business life, also tendered his resignation as a member of the N. A. A. M. executive committee and it was accepted, of course, but so highly is he esteemed that he was unanimously made an honorary member of the committee and a committee appointed to draw up resolutions expressing regards and regrets appropriate to the retirement of such a trade veteran. The vacancy on the executive committee was filled by the election of W. C. Leland, of the Cadillac Motor Car Co.

Two more of the manufacturers who exhibited at the last "independent" and unsanctioned show in Grand Central Palace, and who thereby disqualified themselves for participation in the N. A. A. M. shows, asked to have their disabilities removed, and their applications were granted. The two who were restored to good standing were the McFarlan Motor Car Co. and the Michigan Buggy Co.

The N. A. A. M. executive committee also voted to carry out to the end the case which it instituted in New Jersey some five years ago, with a view of testing the constitutionality of the right of any state to exact a fee and require the residents of other states to secure licenses. The several New Jersey courts successively have upheld the doctrine of states rights in the matter, and the action of the N. A. A. M. means that there will be no lack of funds to carry the case to the United States Supreme Court, and thus have the point settled for all time.

The good roads committee of the association had been in consultation with the promoters of the Lincoln Memorial Highway Association, and following its suggestion the executive committee practically endorsed the project and authorized moderate financial support.

After these matters had been disposed of, the meeting of the executive committee resolved itself into a sort of levee, audiences being granted in turn to representatives of two organizations and to promoters of a semi co-operative insurance project.

H. E. Coffin, Howard Marmon and G. M. Dickson, representing the Manufacturers Contest Association, appeared before the meeting and laid before it certain facts relative to changes to be made in the rules and the urgent necessity of financial assistance by the association and by manufacturers generally. No formal action was taken, the subject being referred to the N. A. A. M. contest committee for a recommendation.

R. P. Hooper, president of the American Automobile Association appeared to urge

support of the forthcoming Glidden tour and specifically to ask that the N. A. A. M. approve the recommendation of the Manufacturers Contest Association of the immediate adoption of the rule which will encourage and permit of the participation of private owners of unregistered cars in such contests. The N. A. A. M. proved agreeable to the suggestion and passed resolutions to that effect.

The promoters of the insurance project came from Philadelphia to explain the details of their enterprise, which includes the insurance of all cars at the time of their sale. They sought the endorsement of the N. A. A. M., but the wise heads of that body listened politely and then referred the matter to its conference committee.

The members of the executive committee present at the meeting were: W. E. Metzger, president; A. L. Pope, Alfred Reeves, Charles Clifton, L. H. Kittredge, H. O. Smith, Thomas Henderson, Benjamin Briscoe, W. T. White, J. W. Gilson, R. D. Chapin and S. A. Miles, general manager.

Canadian Promoters Seeking a Site.

C. M. Preston and E. C. Hill, of Toronto, who are said to have secured the Canadian rights to the Mercedes patents and other foreign rights, are seeking to obtain a site and financial support for several new companies, the organization of which they have in view. One of these is designed to be capitalized at \$1,000,000, and will be styled the Gaso-Electric Motor Co., Ltd. It will be operated in connection with the Canadian Time Test Tire Co., Ltd., in which Preston and Hill are interested also. These promoters visited Niagara Falls, Ont., on Thursday of last week and submitted a proposal to the city council which, however, took no action.

Wants \$100,000 for Non-delivery of Cars.

Suit against the American Motors Co. of Indianapolis for \$100,000 damages has been filed in the Federal court in that city by the Kopmeier Motor Car Co. of Milwaukee, Wis. It is alleged by the Milwaukee company that, under the terms of a sales contract, it deposited \$8,000 with the defendant and that the Indianapolis company refused to return the amount after it had violated the terms of the agreement. The contracts provided for the delivery of forty cars, but only twelve were sent in the specified time, according to the bill of complaint, and the plaintiff claims that it lost \$36,500 because of the failure to make deliveries.

Chance for American Accessories Abroad.

Val H. Muller and L. E. Phipps, who were respectively vice-president and treasurer of the New York export firm, Muller, McLean & Co., are making ready for an "export expedition" to the Far East on their own accounts, which will be undertaken early in December next, and which will occupy

some 18 months. Muller has made three similar journeys in the interests of his former firm and is thoroughly familiar with the ground and the conditions that prevail. On the forthcoming occasion, however, he will devote himself wholly to American automobiles and automobile accessories instead of mixing them with a great diversity of products, as heretofore. He already practically has selected the car he will represent but he is in the market for a number of desirable accessories, for which he is ready to pay cash in New York. Muller and Phipps will visit only the Asiatic countries—India, Burma, Ceylon, Java, Straits Settlement, China and Japan, all of which are promising markets.

To Build Factory for Spare Parts.

With a view of having constantly on hand ample stocks of spare parts for all of the many models ever produced by the several factories included in its organization, the United States Motor Co. is about to make the radical move of establishing a plant which will be devoted wholly to the production of such parts. The arrangements are well in hand, but despite reports to the contrary which have been circulating in the west the site for the factory has not yet been selected; officials of the company state that the plant will be erected unless unforeseen obstacles prevent and that it will be "centrally located," but more they will not say.

Three More Can't Sell Weed Grips.

On Tuesday last, 12th inst., Judge Hazel, sitting in the United States Circuit Court for the Western District of New York and Canandaigua, issued preliminary injunctions against the International Automobile League of Buffalo and A. C. Bidwell, its proprietor; Joseph Strauss & Son and Mathew Strauss, also of Buffalo, restraining them from selling or in any way having to do with the Weed chain tire grip. The injunctions were granted as the result of a proceeding instituted by the Weed Chain Tire Grip Co. alleging infringement of the Parsons patent.

S. A. E. Sets Date for Annual Meeting.

The Society of Automobile Engineers has set its annual meeting to occur in New York, January 18th to 20th, which dates are also the closing days of the commercial vehicle section of the Madison Square Garden show. In addition to electing officers, the Engineers will read and discuss papers of scientific interest and hear reports of their several standards committees.

Two Tire Chain Companies Consolidate.

The Fegley Tire Chain Co., of Philadelphia, and the Pearsall-Traver Mfg. Co., of New York, have been consolidated under the style the Reliance Tire Chain Co. The manufacture of tire chains will be continued in New York.

GENERAL MOTORS TRUCK POLICY

How Big Company's New Subsidiary Will Handle Commercial Cars—Old Nameplates That Will Disappear.

Truck selling on a rather unusual basis, contemplating a broadening and an advance over the more common systems, has been decided upon in connection with the marketing of the commercial vehicle products of the automobile manufacturing concerns in the list of the General Motors Co.'s subsidiaries. As was disclosed when the General Motors Truck Co. was created some months ago, the latter corporation is to undertake the selling of all the trucks made by subsidiaries of the General Motors Co., and by reason of the variety of types that the Truck company will have, it is possible to apply a selling policy that in many respects is unique.

W. J. Mead, who has the active direction of the General Motors Co.'s affairs, and H. S. Stebbins, manager of the General Motors Truck Co., have been working the plan out in detail for some time, and it is to have immediate application in connection with the New York headquarters that have been opened by the General Motors Truck Co. at 240 West Fifty-ninth street, on Columbus Circle, at Broadway.

No longer will the various trucks made by General Motors subsidiaries be featured by their factory names. They will all be known as General Motors trucks, and will bear a nameplate "G. M. C." accordingly. The factory name will only be used to describe the type, as the Reliance type, Buick type, Lansden type, etc. They will not be sold in competition with each other, but will be in united array as the General Motors Truck Co.'s offerings.

In treating with a prospective customer, the first effort will be to determine exactly what type or types of truck will best suit the requirements of his service. For this purpose a capable traffic engineer will make a study of the customer's traffic, and his report will govern the selling effort. It may be that he will find that the customer would best be served by two 1,500-pound high speed gasoline wagons, a two-ton gasoline truck and a three-ton electric truck. On his report to this effect the company will be prepared to furnish what is required. Situations sometimes arise where the customer diagnoses his own case and prescribes the wrong remedy. In such an event it will be the effort to show the customer that a heavier or a lighter truck would answer his purpose better, or that fewer of one type and more of another would meet the situation more perfectly. Other than to see that the customer in each case gets only the types that he needs, there is to be an impartiality as to what types the company sells, so that

the trucks will be sold to fit the customer rather than to make the customer fit the truck.

In the "service" end of the business, including repairs, replacements and adjustments, promptness is to be the ruling consideration. To this end a night force will be employed, so that there will be no such delay as commonly attends similar work on pleasure cars. Truck owners themselves have shown the importance they place on quick repairs and replacements, by buying extra wheels and extra parts for emergency use in connection with their vehicles. Their endeavors to minimize the periods of enforced idleness for their trucks, however, are to be exceeded by what the Truck company itself intends doing toward the same result.

Changes Among Prominent Tradesmen.

O. C. Curtis has been engaged by the Stevens-Duryea Co. as its Southern representative. Previously he traveled the same territory in the interests of the Franklin car.

Leslie B. Sanders has been appointed sales manager for the Lion Motor Car Co., of Adrian, Mich. Previously he was a district sales manager for the United States Motor Co.

J. W. McCrea, manager of the Hupp Corporation's Detroit store, has been transferred to the management of the corporation's branch in Los Angeles. S. B. Winn succeeds to the vacancy in Detroit.

A. M. Pearson has been appointed manager of the Franklin Automobile Co.'s branch in St. Louis. Formerly he was connected with the White branch in Boston and later with the Packard branch in Philadelphia.

P. W. Hood, former Western representative of the American Distributing Co., has been added to the sales staff of the Timken Detroit Axle Co. and the Timken Roller Bearing Co. He probably will operate in the Chicago district.

H. W. Moore, who previously was cashier of the Capitol National Bank, of Indianapolis, has been appointed assistant treasurer of the Mais Motor Truck Co., of that city. He will be located in the company's downtown office instead of at the factory.

Samuel B. Dusenberre, formerly connected with the United States Motor Co., has been appointed western sales manager for the New Departure Mfg. Co., of Bristol, Conn. He will make his headquarters at the Detroit office of the company in the Ford building.

Canadians Purchase Detroit Truck Plant.

The Superior Motor Car Co., of Detroit, of which L. N. Cooper was president, which manufactured commercial vehicles, has been sold to a party of Canadian investors. The entire plant and equipment will be removed to Petrolia, Ont., where the production of the trucks will be continued.

GARDEN SHOW SPACE APPORTIONED

Fifty-eight Board of Trade Members Secure Their Locations—Allotment Gives Comparative Line on Outputs.

Under the auspices of the Show Committee of the Automobile Board of Trade, Col. George Pope, Chairman; Alfred Reeves and L. M. Downs, the drawing for positions in the Madison Square Garden Show January was performed in the offices of that organization on the 6th inst., 58 members being allotted space. The distribution applied only to Part I of the show—that devoted to pleasure cars.

Apart from the mere apportionment of space, the Board of Trade allotment always is of more than surface interest because of the fact that the members draw for positions in the order of outputs, or rather the value of the cars which they have produced during the fiscal year ending June 30th, thus "giving a line" on their respective sales. The showing thus disclosed proved the standing of the first 25 members on this basis to be as follows: Buick, Overland, E-M-F, Cadillac, Packard, Maxwell, Pierce-Arrow, Chalmers, Hudson, Mitchell, Reo, Stoddard-Dayton, Oakland, White, Peerless, Locomobile, Oldsmobile, Stevens-Duryea, Winton, Pope-Hartford, Lozier, Franklin, Marmon, Stearns and Thomas.

While all of those entitled to space on the main floor exercised that privilege, there was no scramble to get spaces Nos. 1 and 2, which are located immediately within the entrance to the main hall of the Garden, several of those who could have secured them, passing them for more central locations.

The space numbers as finally allotted are as follows, the list after the first 23 exhibitors being substantially the order of drawing and production values:

Main Floor.

- | | |
|--------------------|-------------------|
| 1—Oldsmobile. | 13—Stevens-Duryea |
| 2—White. | 14—Buick. |
| 3—Stoddard-Dayton. | 15—Overland. |
| 4—Oakland. | 16—Cadillac. |
| 5—Pope-Hartford. | 17—Packard. |
| 6—Stearns. | 18—Maxwell. |
| 7—Lozier. | 19—Pierce-Arrow. |
| 8—Franklin. | 20—Hudson. |
| 9—Winton. | 21—Chalmers. |
| 10—Locomobile. | 22—Reo. |
| 11—Peerless. | 23—E-M-F. |
| 12—Mitchell. | |

Elevated Platform.

- | | |
|---------------|--------------|
| 101—Marmon. | 112—Brush. |
| 102—Thomas. | 113—Autocar. |
| 103—Alco. | 114—Haynes. |
| 104—Metzger. | 115—Lambert. |
| 105—Elmore. | 116—Pullman. |
| 106—American. | 117—Corbin. |

- | | |
|---------------|---------------|
| 107—Moline. | 118—Moon. |
| 108—Premier. | 119—National. |
| 109—Selden. | 120—Matheson. |
| 110—Columbia. | 121—Knox. |
| 111—Jackson. | |

Exhibition Hall.

- | | |
|-----------------|----------------|
| 50—Inter-State. | 53—Simplex. |
| 51—Amplex. | 54—Case. |
| 52—Mercer. | 55—Carter car. |

Balcony.

- | | |
|----------------|----------------------|
| 201—Garford. | 205—Palmer & Singer. |
| 202—Ohio. | 206—Daimler. |
| 203—Speedwell. | 207—Atlas. |
| 204—Marquette. | 208—McIntyre. |

Small Hope for Economy's Creditors.

According to reliable advices, the unsecured creditors of the Economy Motor Car Co., of Joliet, Ill., which went into the hands of a receiver on the 1st inst., will be fortunate if they realize 10 per cent. of their claims. C. E. Antram, who represents local financial interests, holds a \$12,000 mortgage, and a Joliet bank and two other local creditors and two outside ones also are secured. These amount to about \$25,000, leaving only about \$10,000 for the other creditors, out of which sum the expenses of the receivership must be borne. The liabilities approximate \$50,000. W. R. Everett, of Chicago, the president of the company, acquired control of it only last year and at once ousted the motor buggies which it had been building and set out to produce commercial vehicles. The change caused a financial stringency and Everett for months has been seeking to obtain an extension from his creditors; he says he thought he had about succeeded when the petition in bankruptcy was filed.

Tire Protector to Go to Akron.

William T. Dorgan, vice-president and general manager of the Standard Tire Protector Co., of Saginaw, has purchased the holdings of W. J. Wickes and A. D. Eddy, and has formed a new \$200,000 company under the laws of Ohio, to which state the plant will be removed. It will be located in Akron, where most of the stock is held.

Mitchell Incorporates Four Companies.

Under the laws of Wisconsin, the Mitchell Motor Car Co., of Racine, last week incorporated four branch companies to operate in as many different States. They are respectively the Mitchell Motor Co., of Philadelphia, of Atlanta, of Kansas City and of Seattle. Each is capitalized at \$10,000.

Chicago Branch for Colby Cars.

Pursuing its policy of expansion, the Colby Motor Co., of Mason City, Iowa, has opened a branch in Chicago at 2099 Michigan avenue, where floor space 25 x 150 feet has been obtained. The branch will be managed by W. H. Ogren, formerly of the Logan Auto Garage Co., of Chicago.



Bay City, Mich.—National Motor Truck Co., under Michigan laws, with \$300,000 capital; to manufacture commercial motor vehicles.

Stamford, Conn.—Schickel Motor Co., under Connecticut laws, with \$10,000 capital; to manufacture automobiles, motors, airships, etc.

Augusta, Ga.—Overland Motor Car Co., under Georgia laws, with \$10,000 capital; to deal in automobiles. Corporators—W. R. Eve, R. E. Carroll, J. H. Pronant.

Shawno, Wis.—The Frogner Auto Co., under Wisconsin laws, with \$5,000 capital; to deal in automobiles. Corporators—G. A. Frogner, E. M. Williams, C. E. Dunn.

Jersey City, N. J.—Oakland Motor Sales Co., under New Jersey laws, with \$10,000 capital; to deal in automobiles. Corporators—B. S. Mantz, J. R. Turner, H. A. Black.

Peoria, Ill.—Cadillac Automobile Co., of Peoria, under Illinois laws, with \$5,000 capital; to deal in automobiles. Corporators—Rollen Travis, Henry Naumann, H. H. Moody.

Chicago, Ill.—Ero Manufacturing Co., under Illinois laws, with \$2,400 capital; to deal in automobiles. Corporators—George A. Chrittenton, R. A. Raymojd, Ralph A. Schaefer.

Jersey City, N. J.—The Buick Co., under New Jersey laws, with \$10,000 capital; to deal in automobiles and motorcycles. Corporators—B. S. Mantz, L. H. Gunther, John R. Turner.

Milwaukee, Wis.—Motor Conveyance Co., under Wisconsin laws, with \$30,000 capital; to deal in motor vehicles. Corporators—J. W. Davis, C. F. Pullen, G. B. Louderback.

Boston, Mass.—Jackson Motor Car Co., under Massachusetts laws, with \$30,000 capital; to deal in automobiles. Corporators—Harold A. Matthews, Minot H. Bates, John L. Judd.

Dallas, Texas—Munger Automobile Co., under Texas laws, with \$5,000 capital; to do general automobile business. Corporators—S. T. Munger, Sr., S. T. Munger, Jr., S. R. Munger.

Vernon, Conn.—Buick Garage Co., under Connecticut laws, with \$3,000 capital; to operate a garage. Corporators—David B. Roberts, Thomas F. O'Loughlin, both of Hartford, Conn.

Detroit, Mich.—Motor Foundry Co., under Michigan laws, with \$35,000 capital; to manufacture gasoline motors. Corporators—John H. James, Joseph A. Geyman, Arthur Webster.

Boston, Mass.—Boston Commercial Co., under Massachusetts laws, with \$10,000 capital; to manufacture and deal in commercial vehicles. Corporators—L. H. Farnham, Ira M. Farnham.

Lima, Ohio.—The Lima Overland Co., under Ohio laws, with \$10,000 capital; to deal in automobiles. Corporators—Samuel Roeder, Howard P. Bears, George E. Bayley, George Roeder.

Chehalis, Wash.—Farnsworth Motor Co., under Washington laws, with \$25,000 capital; to manufacture and deal in motors and motor vehicles. Corporators—H. F. Farnsworth, Dick Balfour.

Evanston, Ill.—Evanston Motor Express Co., under Illinois laws, with \$2,500 capital; to do a general transfer business by motor wagons. Corporators—John G. Johnson, Michael F. Curtis, Earle F. Tilly.

La Grange, Ill.—Fifth Avenue Garage Co., under Illinois laws, with \$2,500 capital; to do general automobile business and conduct a garage. Corporators—R. Q. Jones, Clarence C. Collister, H. D. Howe.

Boston, Mass.—Boston Safety Crank Co., under Massachusetts laws, with \$50,000 capital; to manufacture starting cranks for automobiles. Corporators—Myer Berman, Walter M. Harding, Albert E. Rollin.

Canton, Mass.—Canton Garage Co., under Massachusetts laws, with \$10,000 capital; to maintain a garage and automobile livery service. Corporators—Benjamin F. Merritt, Frank W. Mansfield, Nathaniel N. Wentworth.

Montgomery, N. Y.—Security Reliner Co., under New York laws, with \$50,000 capital; to manufacture automobile tire liners and other automobile accessories. Corporators—Elmer I. Emerson, Grace A. Emerson, Orrin T. Barbe, all of Montgomery, N. Y.

Recent Losses by Fire.

Rochester, N. Y.—Rochester Taxicab Co.'s garage and seven automobiles damaged. Loss, \$10,000.

New York City, N. Y.—Richards Auto Supply Co., 1777 Broadway, store and contents burned. Loss, \$5,000.

Boston, Mass.—K. A. Skinner Co.'s garage, 179 Clarendon street, and 50 automobiles burned. Loss, over \$100,000.

Changes in Capitalization.

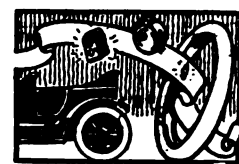
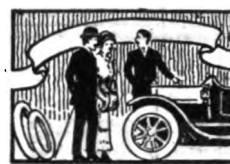
Owosso, Mich.—Owosso Motor Co., from \$200,000 to \$100,000.

Detroit, Mich.—Automobile Mfg. & Engineering Co., to \$50,000.

North Milwaukee, Wis.—Crown Commercial Car Co., from \$50,000 to \$100,000.

Change of Corporate Name.

Detroit, Mich.—Gulley-Walker Co., manufacturers of automobile parts, changes name to N. J. Walker Co.



George W. Creswell has "opened up" in Lancaster, Pa. He will handle the Cole "30" line.

Markee Manoogian is building a garage at 81 West street, Worcester, Mass. It will cost \$2,000.

W. W. Whitney, who maintains a garage in Lynn, Mass., has added a salesroom. He will sell Cole cars.

Julius Dusevoir, a Frenchman not very long in this country, has opened a garage at Centerville, California.

M. A. Bruder will erect a one-story brick garage at 1727-31 Snyder avenue, Philadelphia, Pa. It is to cost \$2,200.

Thomas Richter has opened salesrooms and a garage at 1112 Ludington street, Escanaba, Mich. He will sell Cole cars.

Frederick Bauernschmidt is building a garage at 939 E. Madison street, Baltimore, Md. It will be of iron, two stories high.

Ground has been broken for a three-story garage at the corner of Jackson and Marion streets, Tampa, Fla. Isaac Craft is the owner.

The Park Garage has been moved to new quarters at 18th street and Perkiomen avenue, Reading, Pa. The company handles the Cole "30" line.

The Logan Square Auto Co., of Chicago, Ill., which did a garage and delivery business, has changed its name to Illinois Braceville Coal Co.

J. H. Ebersole, of Washington, D. C., has opened a salesroom at 1521 Fourteenth street, in the national capital, where he will sell Stutz cars.

The Smith Implement Co., of Worthington, Mass., has added automobiles to its other interests and opened salesrooms. Cole cars will be handled.

James Friday has broken ground for a new garage at the corner of Fifth avenue and Elysian street, Pittsburgh, Pa. It will cost, when complete, \$2,500.

The Union Garage Co. is the style of a new concern which has established a garage and repair shop at Adrian, Mich. It is located in the Bijou building.

Thomas Black, of Winnipeg, Can., has been given the Canadian distributing agency for Universal motor trucks. He previously handled motor cars.

C. A. Howard, of Tracy, Cal., has opened salesrooms at Stockton, Cal., where he will display Marion cars. He has the distributing agency for San Joaquin county.

W. A. Grimm and R. W. Warner have formed a partnership and opened a garage

and salesrooms at 225 West Second street. They will handle the Krit and Imperial.

Northern Motors, Ltd., is the style of a concern which has "opened up" in Seaforth, Ont. It has the Canadian agency for Henry, Paige-Detroit and Marathon cars.

The General Motor Car Co., of 3952 Olive street, St. Louis, Mo., has taken the distributing agency for Cole cars. The concern will cover the whole state of Missouri.

At a cost of \$7,500 Horace F. McCann is erecting a garage at 6025 Germantown avenue, Philadelphia, Pa. It will be two stories high, of brick, and thoroughly fire-proof.

The United States Tire Co. has opened a branch in Los Angeles, Cal., under the management of John S. Wiese and Park Stair. It is located at 923 South Grand avenue.

Louis Davidson, of Philadelphia, Pa., has purchased a plot of ground 95 x 80 feet, at the northeast corner of 22nd street and Indiana avenue, on which to build a public garage.

Arthur Schultz has been elected vice-president of the Western Motor Car Co., Chicago agents for Stearns cars. He succeeds his brother-in-law, the late Harry M. Burnell.

Mayor T. L. Craig, of Castonia, S. C., is going into the automobile business. He is building a brick garage, 100 x 30 feet, at the corner of North Marietta street and Long avenue.

The Frank R. Parker Co., dealer in automobiles at 243 Columbus avenue, Boston, Mass., has made an assignment for the benefit of creditors to Alexander Kendall. The company is said to be insolvent.

The Tire Service Co. has been formed at Los Angeles, Cal., and is located at 620 South Spring street; it is under the management of E. Richard Just, who previously was connected with the Morgan & Wright branch.

Baker & Wainwright, who conduct a garage and automobile stage line at Winters, Cal., have purchased the garage of D. O. Judy in the same town. They are establishing therein a repair shop and storage department.

The Overland Co. of Lima, which was incorporated last week under Ohio laws, with a capital stock of \$10,000, has opened salesrooms in Lima, Ohio, at 206 East Market street. Elwood Lindesmith is the manager of the concern, which will handle Overland cars.

Under the style the Paxton-Crumley Co.,

a new concern has "opened up" at the corner of Broad and North streets, Philadelphia, Pa. Warren-Detroit cars will be handled exclusively. Harry Paxton and A. A. Crumley are the men behind the enterprise.

The Twin City Motor Transit Co. has been incorporated under South Dakota laws, with \$150,000, to inaugurate a passenger motor vehicle service between Minneapolis and St. Paul. Guy H. Perry and C. F. McMullen are the men behind the scheme.

The White Motors Co., of which W. A. Rutz is general manager, has taken possession of salesrooms at 1094 Chapel street, New Haven, Conn. The company formerly was located at 666 State street, in the same city, where it displayed White pleasure and commercial cars.

Charles U. Kierstead has purchased the automobile repair business of J. J. Butler, at 1100 Main street, Hartford, Conn. He will do business under the style the City Auto Repair Co. of Hartford, which he has incorporated with \$1,000 capital and with himself as president.

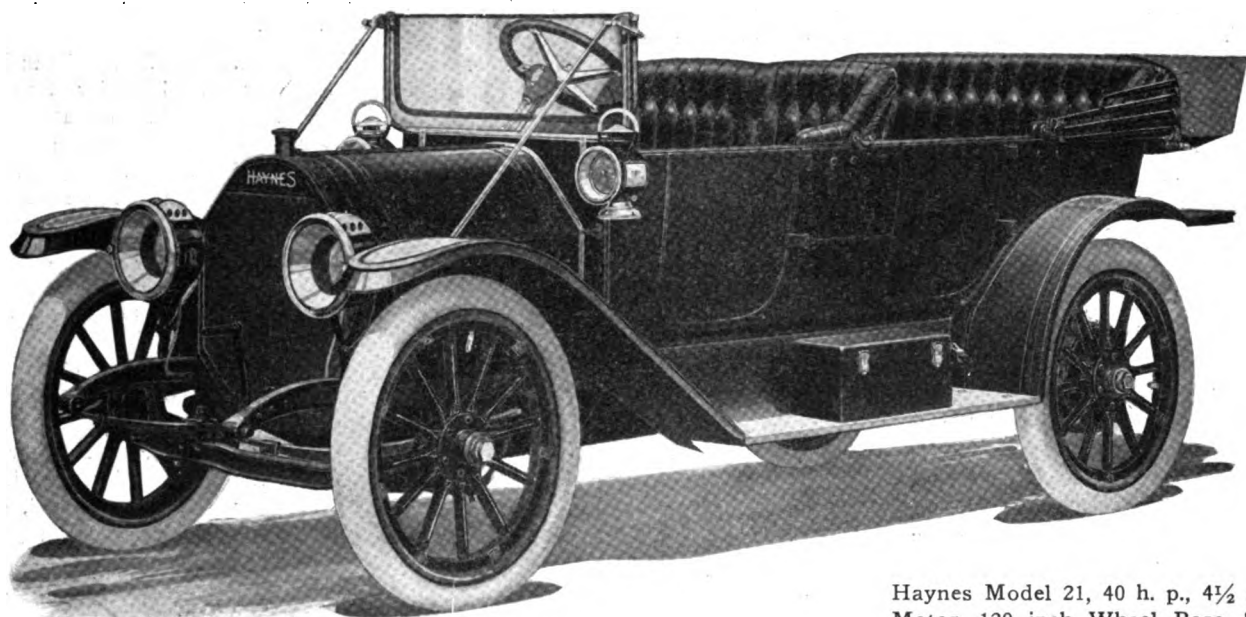
Charles A. Duerr, one of the real veterans of the industry, and P. A. Proal have formed the Morgan Sales Co., and will handle the Morgan truck in New York City. They will make their headquarters at 59th street and 10th avenue, with the Motor Car Repair Co., of which Proal is president.

The Chicago Motor Car Co., which represented Packard cars in the Windy City, has been purchased by the Packard company itself, and will be continued under the style Packard Motor Car Co. of Chicago. H. M. Allison, of the old company, will remain in charge of the branch as general manager.

A. J. Picard, one of the earliest workers in the automobile vineyard, and one of the best known in this part of the country, has formed the firm of A. J. Picard & Co., which, on the 22nd inst., will open an automobile supply establishment at 1720-22 Broadway, New York. Edward S. Morrison, a newcomer, constitutes the "Co."

Harry N. Baetjer and G. Ridgely Sappington have been appointed receivers for the Pullman-Schaffer Motor Car Co., Baltimore agents for Pullman automobiles, following the filing of a petition in involuntary bankruptcy by four local creditors. The assets of the company amount to \$11,000 and the liabilities, \$15,000. The company's place of business is at 408-410 North Calvert street.

The Haynes for 1912 Offers the Dealer a Splendid Line



Haynes Model 21, 40 h. p., $4\frac{1}{2} \times 5\frac{1}{2}$ Motor, 120 inch Wheel Base, \$2,100

The response of public and trade alike to our announcement of the 1912 Haynes models has been beyond all expectations.

Within twenty-four hours after the firing of our first big gun for 1912—the full page announcement in Saturday Evening Post, Collier's, Everybody's, McClure's, Munsey's, and other big publications—dealers in all parts of the country had wired in orders for demonstrating cars and the mails were bringing us bundles—literally bundles—of letters calling for the Haynes 1912 catalog.

Then when our announcement to the trade appeared in this and other publications the activity among dealers reached a point which we had not anticipated at all.

Just stop a minute to think what this means. The fire which completely destroyed our old factory last February practically put the Haynes car out of the market for seven months. In temporary shops we had been able, during that period, to make very few cars—not one-tenth enough cars to fill orders booked **before** the fire. And during those same months, other manufacturers were going to the public and to the trade day after day, month in and month out, with their advertising, with their salesmen, and with their announcements of new models while **we** were at a standstill.

Last month when our magnificent new factory had risen from the ashes of our old one, when its wonderful modern equipment had been installed and our first 1912 model had been built and tested and **proven** to be the **best** of all the splendid Haynes models ever built, **then** we came back into the market. It was a glorious return, and a royal welcome.

We hadn't realized it but the public was **waiting** for the new Haynes.

The 1912 Haynes—two chasses—Model 21, 40 h. p., $4\frac{1}{2} \times 5\frac{1}{2}$ motor, 120 inch wheel base, and Model Y, 50-60 h. p., $5 \times 5\frac{1}{2}$ motor, 127 $\frac{1}{2}$ inch wheel base—with eight types of body selling at \$2,100 to \$3,900—is truly a superb, high power car, and built into it are **eighteen years** of Haynes experience and skill.

There is a LIVE DEMAND for Haynes quality of design and construction at Haynes prices and Haynes dealers will supply this demand. Our first 1912 demonstrators are leaving the factory this week. Write us today, or wire, and if we can take care of you on an agency connection we will advise you at once. Address,

HAYNES AUTOMOBILE COMPANY, Dept. U, Kokomo, Ind.



PUBLISHED EVERY THURSDAY BY

The Motor World Publishing Co.

A. B. SWETLAND.....President

F. V. CLARK.....Secretary-Treasurer

R. G. BETTS.....Managing Editor

184 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) . . . 10 Cents
Foreign and Canadian Subscriptions . . . \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, SEPTEMBER 14, 1911.

Arousing the Spirit of Amateurism.

So far as concerns the pastime, it is one of the happiest auguries of recent times that the Motor Contest Association and the National Association of Automobile Manufacturers should join in recommending the immediate application of the rule affecting privately owned cars which will render the Glidden tour and other similar contests more attractive to amateurs and private owners generally. The recognition and frank avowal that private owners are desirable and necessary to the success of such forms of competition is additional indication of the light that is breaking through, and that, it is to be hoped, marks the dawn of an era of real sport, unclouded by suggestion of commercialism.

As is apparent, and as the Motor World so often has pointed out, the permanence of any sport rests on amateurism, and automobiling is no exception to the rule. With the rules rendered more flexible and

inviting, promoters now should do their part to encourage the amateur. There should be special classes and special tro-

corded it; he should not be snuffed out in either entry blanks or programs.

Light That Does Not Illuminate.

Now that the better regulated communities have frowned on the use of glaring headlights within city precincts the lighting problem, in a way of speaking, may be said to be less in the public eye than it was a year or two ago. Motorists returning from vacations spent more or less on the road, however, are pretty generally alive to the fact that the headlight problem constantly is becoming a more vital factor in regulating the safety of the wayfarer by night.

As the number of cars on the road at night increases, as the depravity of the reckless driver continues to hold unabated sway, and as automobile traffic penetrates further into unknown and uncultivated regions, the amount of dependence which must be placed on the lighting system necessarily becomes greater. Whence it may be observed that less attention than formerly now is being paid to properly focusing the headlights. Despite the advantages of adjustable brackets, devices for varying the focus of electric lights and even sundry methods of causing the headlights to swing with the front wheels and so illuminate the course immediately to be traversed, it is a fact that a large percentage of the cars encountered in the paths of darkness are equipped with inadequate lighting. Frequently the result is more bewildering to drivers of opposing traffic than illuminating to the driver whom it is supposed to benefit. Cars with headlights which present a "cross-eyed" effect, or which shed more light on the tree tops than on the road, divide honors with those which are fitted with equipment which is directed to one side or too low to be of real service to the driver.

As far as the optical problem goes, there are two distinct theories to be considered. One has it that both headlights should be directed to a common focal point in the center of the car's direction and should have sufficient range only to illuminate a spot within easy distinguishing distance of a driver with normal vision. The other theory is that one of the headlights should be directed to the point of maximum easy vision, while the other is brought to bear on the road immediately in front of the car. Both long and short range adjustments have their advantages under differ-

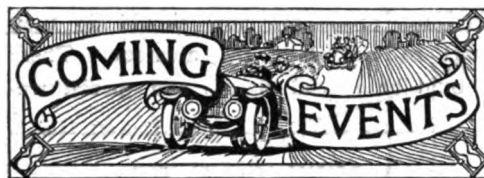
ANNOUNCEMENT.

The Motor World Publishing Co., Joseph Goodman, president, announces the sale and transfer of its capital stock, assets and goodwill to Mr. A. B. Swetland and his associates, the transfer bearing date as of September 1st. Mr. Swetland has spent the greater part of his life in the publishing business and as he long has been identified with the automobile trade he requires no introduction. The impress he has made speaks for itself. In expressing appreciation of the support that has been accorded them during the past eleven years, the retiring owners of the Motor World bespeak for their successors that full measure of confidence and patronage of which they are in every way worthy.

In assuming the responsibility of unrestricted ownership and management of the Motor World, we will continue its present purpose and scope—"A trade paper giving the world's motor news." Long established, as time can be measured in a relatively new industry, its volumes now contain the most complete record extant of the unprecedented industrial and financial development of the trade and its outgrowths. We believe the future holds still greater achievement, which will be recorded in these pages as automobile history is made—completely, concisely, truthfully and promptly. And the aim of our editorial and business policy will be competent service and the square deal for everyone under every conceivable and self-respecting circumstance and condition; being absolutely unfettered and with our interests bound wholly and solely in the Motor World we will leave nothing undone to serve those purposes.

MOTOR WORLD PUBLISHING CO.,
A. B. Swetland, President.

phies for private owners, and every effort should be made to inject the element of human interest into every form of competition. The man is entitled to as much credit as the machine and should be ac-



ent conditions, while the compromise effect, otherwise satisfactory, falls short of the mark through failing to provide maximum intensity of illumination at either point.

An ideal system would be one in which the headlights were constrained to follow the direction of the steering gear and which also provided means for altering the range to suit speed and road conditions—long range adjustments being best for high speeds on good roads and short range for heavy running conditions. What is more to the point, however, is that motorists the country over should be impressed with the need of maintaining the proper alignment of lamp brackets and of avoiding adjustments which tend to cast a blinding light in the faces of approaching drivers. Such a precaution may be one of the "courtesies of the road" that have to be enforced by legal means.

Overcoming the Idle Motor Truck.

In considering commercial vehicle operation problems cost estimates usually are predicted on maximum service with the understanding that the more nearly continuous the service requirements—up to the point of overload—the greater will be the economy. Apparently this discounts the utility of the motor truck to the operator whose need of transportation is intermittent or only occasional. It is true that as compared with horses, automobiles do not "eat their heads off" while standing in the stall, but the fact remains that the automobile investment is sufficiently heavy to render it a questionable plan to allow it to remain idle.

There is no particular reason why a business should be deprived of the certainty and convenience of motor haulage merely because its requirement is not continuous. Hence such a case is worth investigating. Obviously two courses are open. One is to hire vehicles to perform the service when required; this solution taking it for granted that suitable service is obtainable and at a moderate figure. The plan is applicable in several ways and were it wholly feasible would set at rest all doubts. The only trouble is that it seldom is feasible. In the rare cases where adequate truck service is to be had on a rental basis it usually happens that the cost is high. The liveryman must protect himself against the very idle periods which the business man is seeking to avoid and he must have his own profit above expenses.

Sept. 15, Knoxville, Tenn.—Track meet, Appalachian Exposition.

Sept. 16, Syracuse, N. Y.—Track race-meet at the State Fair grounds.

Sept. 18-20, Chicago, Ill.—Reliability contest for motor trucks, under auspices of Chicago Motor Club.

Sept. 18-22, Detroit, Mich.—Automobile show in connection with the Michigan State Fair.

Sept. 19-23, Burlington, Vt.—Burlington Merchants' Protective Association's reliability run.

Sept. 23, Lowell, Mass.—Road races under auspices of Lowell Automobile Club.

Sept. 23, Detroit, Mich.—State Automobile Association's racemeet.

Sept. 30-Oct. 7, Sydney, N. S. W.—International automobile exposition under auspices of Royal Agricultural Society.

Oct. 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers' Association's open air show.

Oct. 3-7, Danbury, Conn.—Track meet under auspices Danbury Agricultural Society.

October 7, Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

Oct. 9-13, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

Oct. 12-22, Berlin, Germany.—International automobile show in Exhibition Hall, Zoological Garden.

The second alternative is to purchase and hold a sufficient equipment to meet the maximum of service conditions, laying up such portion of it as is not needed during slack periods. The question then arises as to the actual cost of trucks when idle. To make it profitable to own, rather than to hire the rush period equipment, other things being equal, the cost of operating the extra equipment when in use, plus its cost while idle, must fall inside the cost of hire for similar service obtained. Broadly speaking, the storage cost of the equipment must be balanced against the profit of the professional operator or liveryman.

Circumstances govern cases, and in most instances it is probable that local, rather than general conditions, will provide for the balance of advantage one way or the

Oct. 13-14, Atlanta, Ga.—Racemeet under management H. C. George.

Oct. 14, Santa Monica, Cal.—Santa Monica road races under auspices of Santa Monica Motor Car Dealers' Association.

Oct. 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

Nov. 1, Waco, Texas.—Racemeet under auspices Waco Automobile Club.

Nov. 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

Nov. 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

Nov. 9-12, San Antonio, Texas.—Racemeet under auspices San Antonio Automobile Club.

Nov. 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

Nov. 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

Nov. 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

Nov. 30, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

Dec. 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

Jan. 6-20, New York City.—Automobile Board of Trade's 12th annual national show in Madison Square Garden.

Jan. 10-17, New York City.—National Association of Automobile Manufacturers' 12th annual show in Grand Central Palace.

January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association annual show at Wayne Garden.

Jan. 27-Feb. 10, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in Coliseum and First Regiment Armory.

other. A point to be considered in this connection is brought out in another column by Robert McA. Lloyd in discussing the motor moving van. Owing to its mechanical simplicity the electric truck suffers less deterioration, costs less to "cut in" and "cut out," figuratively speaking, and therefore is cheaper when idle than the gasoline truck.

Safe to say the problem involved is one of present-day expedient rather than perpetual burden. In due season motor haulage will adjust itself to a normal state. Then, doubtless, a sufficient demand for contract haulage will develop to encourage considerable investments in rolling stock devoted to that purpose and likewise sufficient competition to force rates down to an equitable level.

HERR THE LION AT PORT JEFFERSON

National Driver Bags Four Events at Long Island Hill Climb—Threatening Weather Mars Lengthy Program

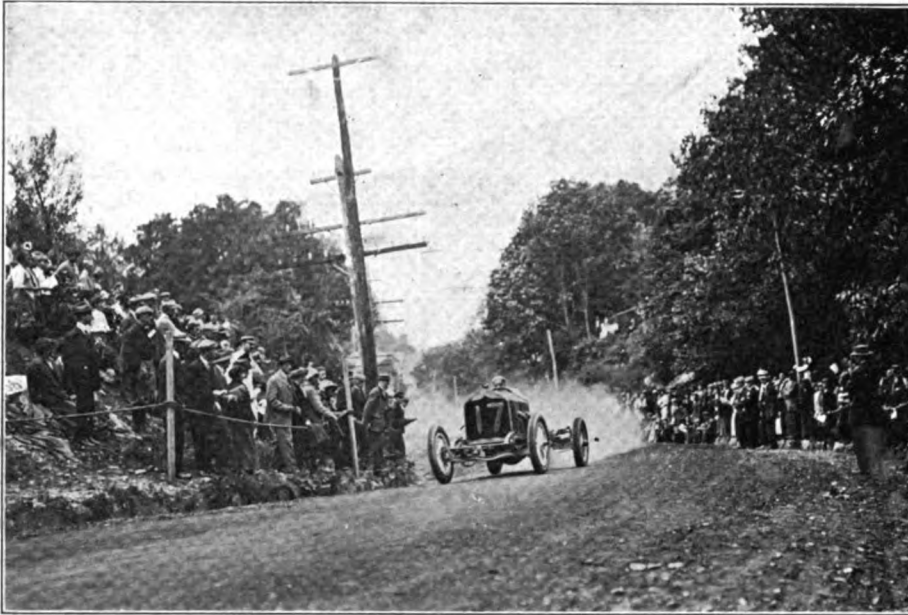
"Hill climbs are slow," disgustedly remarked one of the spectators of the Port Jefferson affair, after watching all sorts of

wire, but after a tremendous bump, in which all four wheels of his car went clear of the road, he straightened out and persons commenced to breathe again. The performance of Hughes in his little yellow Mercer was deceptive; he did not seem to go very fast as he scarcely skidded an inch, but that he did "make time" was evidenced by the timing apparatus. He came dangerously near Herr in the class for cars cost-

of oil had been spilled and the road was hard and practically dustless except at the top of the grade, where a shortage of oil and a plenitude of small stones was apparent. As a result, the timers and judges and other officials, who occupied a tiny stand, soon acquired a generous coating of Long Island real estate.

The crowd which turned out was a slim one. At both the start and finish lines there was a semblance of a crowd, though all along the course it was not necessary for spectators to crane their necks to look over persons in front of them. A very thin line on either side of the road constituted the crowd. A fair proportion of it was made up of ladies and children and the gathering of natives and yachtsmen from visiting craft far outnumbered the motoring contingent that was present. Perhaps the threatening weather had something to do with the shortage of motorists, but anyway very little enthusiasm was apparent, not a few of those who had foregathered leaving long before the curtain was rung down.

The first car got over the starting line a little after 1:30, and from then until after five o'clock cars continued to climb, each driver being permitted two trials at the hill, and though the best time in the two trials governed, not a few of the contestants failed to better their first efforts when they went up later. All starts were rolling, or rather flying, the cars starting about an



DON HERR (NATIONAL) WINNING THE FREE-FOR-ALL

cars snort their way up the 2,000 foot incline in the Long Island village on Saturday last, 9th inst. Which, taken literally, is not absolutely true—part of the program, at least, was productive of speed, though by far the greater part of it was not. Colloquially, the affair surely was "slow," which is to say, that there was little excitement, the spectacle of a single car on the course at a time scarcely causing an increased heart-throb.

The pilots who furnished the really fast driving and the only thrills of the day may be counted on the fingers of one hand. Of the five, Don Herr, who but recently made his debut at the wheel of a National, was the bright particular star. He was entered in four events and he won them all, including the big event of the day, the free-for-all. This he carried off in 21.31 seconds, which was the fastest time recorded during the meet.

Louis Disbrow, with his old familiar Pope "Hummer," also drove fast—so fast that every time it was announced that he had started, the spectators rushed back from the side lines, for they remembered his sensational work last year. The two Knox hill climb artists, Coffey and Belcher, likewise caused a general scattering of on-lookers, and incidentally of dust, for nearly every time Coffey came up he skidded over the timing wire and broke it. Once he nearly ran into a knot of standees at the



F. S. APGAR (LION) IN SIGHT OF THE SUMMIT

ing between \$2,001 and \$3,000, and of course he won his piston displacement class—he almost invariably does so.

It was the second annual hill climb which the Automobile Club of Port Jefferson has promoted, and the course over which it was run was in well nigh perfect condition. The slant is 2,000 feet in length and the gradient varies from 6 to 16 per cent. Lots

eighth of a mile from the line and almost in the heart of the village.

The light cars were sent away first, and though some of them care perilously near to "dying" on the steep grade, they all got up without trouble, and their performances, though slow in comparison with the fast time which subsequently was made, nevertheless were creditable in view of the hard



F. W. BELCHER (KNOX) AND A DOWN HILL VIEW

climb and the small motors. Walter Blair (Ford) accounted for the class for touring cars costing less than \$800, with Phillip Walters, also in a Ford, second. Later, Blair came back and was second to Clifford Bishop (Ford) in the next largest class for cars costing between \$800 and \$1,200. F. S. Apgar had no particular trouble in winning the \$1,201-\$1,600 division with his Lion, and repeated his victory in the 161-230 inches piston displacement class. H. B. Tucker (Corbin) was first in the division for cars costing from \$1,601 to \$2,000, with Walter Blair, this time in a Cole "30," second.

It was in the next larger price division class—\$2,001-\$3,000—that Herr started his winning streak. Hughes in his Mercer was the only other starter in this event, and he was only a little more than a second behind Herr. In the free-for-all which followed Fred. Belcher (Knox) was only beaten by the Herr-National combination by the scant margin of 26/100 of a second, while Louis Disbrow, who was third, was very nearly two seconds slower. Thereafter, Herr won both the 301-450 and the 451-600 inches classes by comfortable margins, Disbrow somewhat retrieving himself by running second in the former event, while Belcher and Coffey, both in Knox cars, were second and third, respectively, in the larger class. The summary:

Gasolene stock cars, \$800 and under.

Driver and Car	Time
Walter Blair, Ford	44.88
Phillip Walters, Ford	48.83
Rudolph Wehr, Krit	1:37.47

Gasolene stock cars, \$801-\$1,200.

Clifford Bishop, Ford	43.06
Walter Blair, Ford	46.61
J. Craig, Paige-Detroit	48.71

Gasolene stock cars, \$1,201-\$1,600.

F. S. Apgar, Lion	29.22
J. Taylor, Correja	33.95

Gasolene stock cars, \$1,601-\$2,000.

H. B. Tucker, Corbin	32.90
Walter Blair, Cole "30"	43.55
A. M. Campbell, Velie	46.24
J. Craig, Colby	47.98

Gasolene stock cars, \$2,001-\$3,000.

Don Herr, National	24.45
Hughie Hughes, Mercer	25.41

Free-for-all.

Don Herr, National	21.31
F. W. Belcher, Knox	21.57
Louis Disbrow, Pope-Hartford	23.87
J. J. Coffey, Knox	24.04
R. W. Stuard, Fiat	24.91
Hughie Hughes, Mercer	27.09
D. M. Bellman, Mercedes	28.27

161-230 inches displacement.

F. S. Apgar, Lion	27.57
Rudolph Wehr, Krit	36.21
S. C. Hutcheson, Jackson	38.26
Wm. Davis, Courier	42.24
J. Craig, Paige-Detroit	48.91

231-300 inches displacement.

Hughie Hughes, Mercer	25.55
A. Maisonville, Corbin	27.32
Ernest Thyret, Cole "30"	29.12
C. Gresivold, Staver-Chicago	32.64
J. Taylor, Correja	32.76

301-450 inches displacement.

Don Herr, National	23.19
Louis Disbrow, Pope-Hartford	24.33
J. J. Coffey, Knox	24.79
F. S. Apgar, Lion	33.14

451-600 inches displacement.

Don Herr, National	21.37
F. W. Belcher, Knox	21.90
J. J. Coffey, Knox	24.52
D. M. Bellman, Mercedes	28.48

Amateur drivers, gasolene cars,
\$1,200-\$2,000.

W. J. Fallon, Corbin	34.56
Wm. Davis, Ford	41.81

Amateur drivers, gasolene cars,
\$2,000 and over.

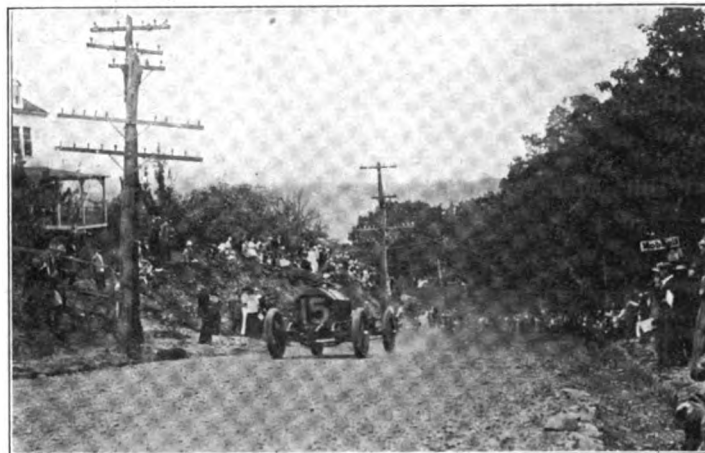
M. J. Fallon, National	25.30
Captain Hawkins, Knox	35.02
J. Van de Venter, Speedwell	39.97
Wm. R. Brass, Acme	55.55

Cars owned and driven by amateur residents of Port Jefferson.

C. W. Bishop, Buick	33.43
C. Gresivold, Staver-Chicago	35.32
D. Alvord, Pierce-Arrow	35.54
Wm. Davis, Courier	41.52
R. Schmeltz, Buick	51.02

Special match race.

W. Buchanan, Metz	38.51
W. Blair, Ford	55.07



HUGHIE HUGHES (MERCER) WHIZZING TO VICTORY



PORT JEFFERSONIANS WELCOMING THE HILL CLIMBERS



AT THE TAKE-OFF OF THE PORT JEFFERSON CLIMB

BAUER BEST IN BUFFALO CONTEST

**His the Only Clean Road Score and None
Surmounts Technical Test—Four Days
of Grueling Going.**

After four days of travel over the poorest roads that could be found in Western New York, Howard A. Bauer, at the wheel

In those for touring cars \$1,201—\$1,600, a dispute arose over a technical point regarding two Maxwell cars. Three contenders finished the road tests in this class. They were E. G. Gager, Maxwell, who was penalized 39 points; J. W. Gardham, Everitt, 57 points, and Thomas Costello, Maxwell, 106 points. In the technical examination a dispute arose and the committee took the matter under consideration and up to yes-

to conspire to make them worse. Recent rains had made the ground soft and the mud in many places reached the hub caps of the machines. There were many hills, too, some of which make the national hill climbing grades look like pimples. Some of the roads were like the rocky bottoms of creeks and in many cases streams were encountered that brought the water to the cylinders of the motors. It had been expected that there would be at least 30 starters, but a study of the itinerary caused half of them to withdraw at the last moment. Of the 15 who started only eight finished.

Boliver was the noon control of the first day and promptly at 6:30 Wednesday morning Pilot D. H. Lewis, driving an E-M-F, blazed the way in that direction. He was followed by A. W. Kreinheder, referee and pacemaker, in a Pierce-Arrow; Chairman Augustus Knoll, in a Thomas "six," and the representatives of the press in a 1912 six-cylinder Cole, driven by E. A. Green, Buffalo agent for the Cole. The contestants came next at minute intervals as follows: C. F. Monroe, Maxwell; E. G. Gager, Maxwell; B. W. Scott, Flanders; T. R. Bell, Flanders; H. L. Blomstrom, Lion; J. W. Gardham, Everitt; G. M. Herron, Flanders; Thomas Costello, Maxwell; E. W. and C. H. Werick, Schacht; E. A. Blaney, Ohio; N. Wilkinson and L. J. Kinitz, Ford; G. Morton Wolfe, Ford; Howard A. Bauer, Oakland; J. D. Mohrhardt, Warren-Detroit; J. E. McFadden, Paige-Detroit; Frank H. Denny, Abbott-



BAUER (OAKLAND) ENOS TROPHY WINNER

of an Oakland, was the only one of 15 contestants in the second annual reliability tour of the Automobile Club of Buffalo, 6th to 9th inst., to complete the 800 miles with a perfect score. However, after the technical committee finished its rigid examination even Bauer's record was slightly soiled, but not sufficiently to keep him from securing the most coveted honor, the Enos trophy. When the technical tests were over, Bauer had been debited eight points. His nearest competitor was T. R. Bell, driver of a Flanders, who was penalized 16 points by the technical committee in addition to 38 he had lost on the road. Bauer therefore was awarded the Laurens Enos trophy, which has been held during the past year by Charles F. Munroe. The trophy was offered by Laurens Enos, president of the Buffalo Club, and is to be won three times before it becomes the permanent property of the holder.

In addition to the Enos trophy, which was the free-for-all award, there also were offered prizes to the class winners, and here again Bauer won, taking the prize in his class, the runabout division for cars costing \$1,200—\$1,600. The other class winners were the following: Runabouts, \$800 and under, T. R. Bell, Flanders; touring cars, \$2,001—\$3,000, H. L. Blomstrom, Lion.

No awards were made in the other classes.



COLE PRESS CAR ON THE PITCH OF BUFFALO HILL

terday (Wednesday) afternoon, no decision had been reached.

Buffalo was the starting and finishing point of each day's run, the route being through different territory. It was a real reliability contest, the roads traversed were not only generally bad, but nature seemed

Detroit; C. A. Almendinger, Hupmobile; James Noonan, Pierce-Arrow, and M. R. McCullough, Thomas "six." The last four, however, were non-contestants.

The route was through Warsaw and Wellsville and because of road conditions many things happened. Penalties were in-



BLOMSTROM (LION) HIGH UP NEAR JAVA



GARDHAM (EVERITT) ON THE ROAD NEAR GOWANDA

TABULAR SUMMARY OF RESULTS OF BUFFALO RELIABILITY TOUR, SEPTEMBER 6-9

Runabouts, \$800 and Under

Driver and Car	Road Penalties					Technical Penalties					Grand Total
	1st Day	2nd Day	3rd Day	4th Day	Total	Brake	Clutch	Motor	Car	Total	
T. R. Bell, Flanders.....	3	0	0	35	38	5	0	0	11	16	54
G. Morton Wolfe, Ford.....	0	0	5	43	48	5	0	5	15	25	73
B. W. Scott, Flanders.....	3	0	0	Withdrawn						1000	1003
G. M. Herron, Flanders.....	0	4	0	Withdrawn						1000	1004

Touring Cars, \$800 and Under

N. Wilkinson, L. J. Kinitz, Ford...	19	5	9	19	52	19	0	0	36	55	107
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Runabouts, \$801-\$1,200

J. E. McFadden, Paige-Detroit....	634	291	318	Withdrawn						1000	2243
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Runabouts, \$1,201-\$1,600

Howard A. Bauer, Oakland.....	0	0	0	0	0	0	0	0	8	8	8
J. S. Mohrhardt, Warren-Detroit..	0	1	3	3	7	41	0	0	31	72	79

Touring Cars, \$1,201-\$1,600*

E. G. Gager, Maxwell.....	18	14	3	4	39						
J. W. Gardham, Everitt.....	27	4	23	3	57						
Thomas Costello, Maxwell.....	46	58	2	0	106						
C. F. Monroe, Maxwell.....	Mishap—Withdrew									1000	1000
E. W. & C. H. Werick, Schacht...	Mishap—Withdrew									1000	1000

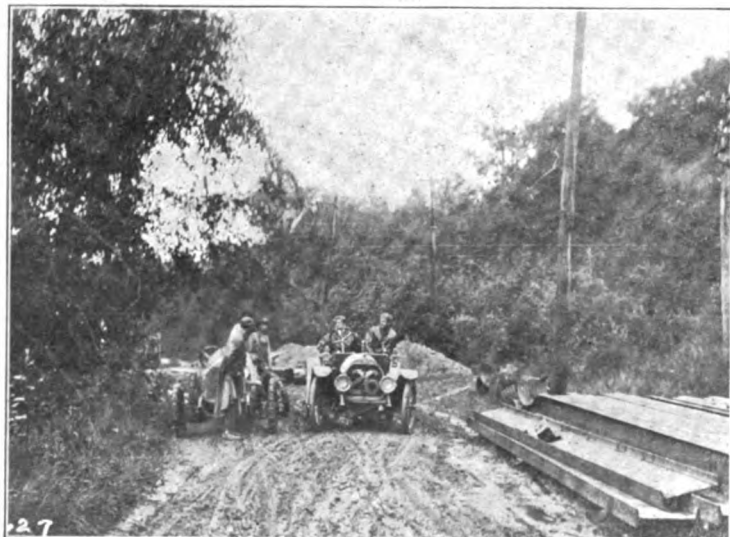
Touring Cars, \$1,601-\$2,000

E. A. Blaney, Ohio.....	96	3	14	Withdrawn						1000	1113
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Touring Cars, \$2,001-\$3,000.

H. L. Blomstrom, Lion.....	11	8	20	74	113	0	0	5	508	513	625
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* Technical penalties and awards not yet settled.



MCFADDEN (PAIGE) AT A WILD SPOT NEAR CASTILE



ON BOSTON HILL, ONE OF THE SOUL-TRYING GRADES

afflicted only for mechanical trouble, leaving the cars free to make any speed they desired without penalty, although running schedules for each class were as follows: Cars selling at \$800 and under, 16 miles per hour; \$800 to \$1,600, 18 miles, and over \$1,601, 20 miles. This was not followed closely the first day on account of the mud, although the 200 miles was covered in less than 16 hours by nearly all the cars. Just before reaching Bolivar, Charles F. Monroe, Maxwell, who won the trophy last year, and was defending it, was the victim of an unfortunate accident which put him out of the contest. He had stopped to let a farmer's team pass when a non-contesting car came along. Monroe signaled this car to stop, but its driver did not see the signal and crashed into the rear end of Monroe's Maxwell. A few minutes later E. W. and C. H. Werick (Schacht), followed, and in an effort to get out of the way their car skidded into Monroe's car, adding further damage and putting their own out of commission. Both automobiles returned to Buffalo and were withdrawn from the contest. The return from Bolivar was by way of Olean. Various difficulties were encountered and when the cars checked in at Buffalo, but four had clean scores. The day's penalties were, T. R. Bell, Flanders, 3; B. W. Scott, Flanders, 3; L. Blomstrom, Lion, 11; E. G. Gager, Maxwell, 18; N. Wilkinson and L. J. Kinitz, Ford, 19; J. W. Gardham, Everitt, 27; Thomas Costello, Maxwell, 46; E. A. Blaney, Ohio, 96; J. E. McFadden, Paige-Detroit, 634.

Dansville was the turning point of Thursday's run. The roads were not quite as bad as those of the preceding day. However, it was no joy ride or pleasure trip. Several bad hills were encountered and some rough winding roads. Mud also was very much in evidence, and when all cars checked in at Buffalo after finishing the 200 miles but two clean scores remained. They were, Howard A. Bauer, Oakland, and C. Morton Wolfe, Ford. The day's penalties were, J. S. Mohrhardt, Warren-Detroit, 1; E. A. Blaney, Ohio, 3; J. W. Gardham, Everitt, 4; G. M. Herron, Flanders, 4; N. Wilkinson and L. J. Kinitz, Ford, 5; H. L. Blomstrom, Lion, 8; E. G. Gager, Maxwell, 14; Thomas Costello, Maxwell, 58; J. E. McFadden, Paige-Detroit, 291.

Although the run on Friday was a trifle more than 200 miles, the going was somewhat better than that of the preceding days. It took the contestants through Bedford, Warren and Jamestown. However, in order to keep within schedule time many of the smaller cars were compelled to maintain a pace of at least 25 miles an hour. C. Morton Wolfe, Ford, who up to this time held a perfect score, lost five points, while at the same time J. E. McFadden, Paige-Detroit, who had trouble each day, after being assessed 318 points, withdrew. The grind was also more than G. M. Herron, Flanders, and B. W. Scott, Flanders, cared to continue, and although

they covered the day's run without serious mishap, they also withdrew. This left but eight cars for the last day's run. The penalties for the day were, Thomas Costello, Maxwell, 2; E. G. Gager, Maxwell, 3; J. S. Mohrhardt, Warren-Detroit, 3; C. Morton Wolfe, 5; Wilkinson and L. J. Kinitz, 9; J. E. McFadden, Paige-Detroit, 318; E. A. Blaney, Ohio, 14; J. W. Gardham, Everitt, 230.

Sliding up and down mud banks and negotiating streams was part of Saturday's proceedings in order to reach North Java and return. The route was through Springfield, Batavia, Albion and Perkin, and the roads were worse than those encountered on the first day. In selecting the course Pilot Lewis determined to make it as severe as possible and well succeeded. Credit, however, is not only due to the cars, but to the drivers for only by extreme care serious accidents were avoided. When the last of the eight cars making this final trip checked in at Buffalo, but two—Bauer, Oakland, and Costello, Maxwell, had clean scores for the day and Bauer alone survived the four days without a penalty.

The day's penalties were: J. S. Mohrhardt, Warren-Detroit, 3; J. W. Gardham, Everitt, 3; E. G. Gager, Maxwell, 4; N. Wilkinson and L. J. Kinitz, Ford, 19; T. R. Bell, Flanders, 35; C. M. Wolfe, Ford, 43.

Frank H. Denny, Abbott-Detroit, who was a non-contestant, dropped out on the last day, but the other non-contestants made the entire trip and are credited with perfect road scores. The accompanying table gives the scores in detail.

Fastest Climbers Lose at Sioux City.

Entering stock chassis in stock car contests, which is contrary to the rules of the A. A. A., caused some disagreement at the hill climb promoted by the Sioux City Automobile Club, Saturday, 2nd inst. It was the first hill climb to be held in that Iowa city, which may account for the trouble. The course was less than a mile long. The best time was credited to two Moon cars, entered by the Bennett Co., which negotiated the grade in 37¾ and 38 seconds, but as they were stripped chassis of the roadster and touring car class, they were disqualified and the officials refused to accept the performances except as exhibitions. The summary:

Roadsters, \$801-\$1,200—Won by Bert Smith, Ford; second, Ford (Warnock Co.); third, E. L. Adams, Cartercar. Time, 0:45.

Touring cars, \$1,201-\$1,600—C. A. Kneeder, Buick, and Moon (Bennett Co.), tied for first; second, F. T. Leeder, Reo, and W. A. Retz, Buick (tied). Time, 0:51.

Roadsters, \$1,601-\$2,000—Won by Bert Smith, Ford; second, Ford (Warnock Co.). Time, 0:46¾.

Trial for the hill record—Moon (Bennett Co.). Time, 0:37¾. Disqualified as it was a stock chassis and not a stock car.

Touring cars, \$1,600-\$2,000—Won by Buick (Nebraska Buick Co.); second, F. T. Leeder, Reo. Time, 0:49¾.

Touring cars, 301-450 inches displacement—Won by Buick (Nebraska Buick Co.); second, W. A. Reetz, Buick. Time, 0:49¾.

Roadsters, 301-450 inches displacement—Won by O'Connell, Velie. Time, 0:53¾. Moon (Bennett Co.) was first in 0:38, but was disqualified for being out of its class.

Free-for-all—Won by H. A. Wetmore, Chalmers; second, B. Smith, Ford. Time, 0:47.

Free-for-all, touring cars—Won by Buick (Nebraska Buick Co.); second, W. A. Reetz, Buick; third, Thomas, Inter-State. Time, 0:47¾.

Free-for-all, roadsters—Won by O'Connell, Velie; second, Ford (Warnock Co.). Time, 0:50¾.

Cooper "Cleans Up" at San Jose.

Earl Cooper, at the wheel of a Maxwell, carried off the honors at the speed carnival held at San Jose (Cal.) Driving Park, Sunday, 3rd inst. The track was in good condition and over 5,000 spectators witnessed the performance. Cooper lost but one of the four races given. This was when he forsook his Maxwell for a big Pennsylvania "six" and in a special match met Frank Free, driving an eight-cylinder 70 horsepower "Comet." In all the other races he had a clean-cut victory.

The 15 miles free-for-all race proved a battle royal between Cooper, Maxwell, and Free, Comet, after the fourth mile. Free was away at the drop of the flag and Cooper had a bad start. At the first mile he was last but on the next lap passed his brother, Ray Cooper, Pennsylvania, and during the third mile overtook F. J. O'Brien, Ford. At the end of the fourth mile Cooper nosed his car in front of Free, and for the next ten miles the cars were side by side. During the last mile the Comet suddenly began to miss and Cooper shot the Maxwell ahead and crossed the line with a safe lead.

The summary:

Ten miles, stock chassis, 300 cubic inches and under—Won by Earl Cooper, Maxwell; second, Al Marino, Buick; third, F. J. O'Brien, Ford. Time, 11:29¾.

Five miles match, Earl Cooper, Pennsylvania, vs. Frank Free, Comet—Won by Free. Time, 5:20¾.

Ten miles, handicap—Won by Earl Cooper, Maxwell (30 seconds); second, Frank Free, Comet (scratch); third, F. J. O'Brien, Ford (40 seconds). Time, 10:24.

Fifteen miles, free-for-all—Won by Earl Cooper, Maxwell; second, Frank Free, Comet; third, Ray Cooper, Pennsylvania. Time, 16:41.

Philadelphia Racemeet Postponed.

The bad condition of Point Breeze track, combined with a lack of entries, caused the Philadelphia Automobile Trades Association to postpone the racemeet announced for the 7th and 8th inst. And when it is run, on the 23rd inst, it will be only a one day affair.

CINCINNATI TAKES LONG CHANCES

**Two Strenuous Road Races Decided on
Dangerous Course—Three Spills—Jen-
kins and Hearne the Victors.**

Over a sadly neglected course and under conditions that were anything but encouraging, Eddie Hearne, driving a Fiat, and Johnny Jenkins, in a Cole, won the two road races—one at 197.5 miles for cars under 600 inches displacement, and the other at 150 miles for cars under 300 inches displacement—with which the celebration over the Fernbank dam in the Ohio river at Cincinnati was brought to a close on Saturday last, 9th inst. Hearne's time for the longer event was 3:29:03, which is at the rate of 56.7 miles an hour, while Jenkins covered the shorter route at the rate of 54.5 miles an hour in 2:46:29.

According to the entry blanks three events originally were carded, a race at 180 miles for cars in the 301-450-inch class being sandwiched in between the other two, the longer of which also was different as first announced being scheduled to go 250 miles. But the course was in such vile condition, due to continued rain, and the roads were far from smooth even when dry, that 52½ miles, or seven laps of the 7.9 miles course, were lopped off the long race just prior to the start. As for the intermediate event, that was abandoned long before because of lack of entries and up to within a few days of the start it looked very much as if the other would share its fate. C. E. Stuart, of the Indianapolis Speedway, who had arrangements under his wing, scurried around, however, the result being that by Saturday morning a fair representation was on hand.

For the two races the entries were the same except that for the longer event the list was augmented by the addition of Eddie Hearne (Fiat), Harry Knight (Westcott) and Gil Anderson (Stutz). The other entries were as follows: Montague Roberts, Abbott-Detroit; Rupert Jeffkins, Schacht; Johnny Jenkins, Cole; Harry Matthews, Ohio; William Thatcher, Ohio; J. K. Gilchrist, Cino; Andy Burke, Cino; John Raimsey, Cino; W. H. Pearce, Colby.

But even though the entry lists were fairly well filled there came very near not being any races after all; militiamen who were supposed to be on hand and in their places before 10 o'clock failed to put in appearance until the last minute and it almost had been decided to call the whole affair off. Eventually they did show up, though nearly an hour late, and the start, which was scheduled for 11 o'clock, did not take place till nearly noon. The so-called guards might just as well have stayed away altogether for all the good they did, however, spectators roamed at will over the course and the "soldiering" that

was exhibited by the guards was a caution.

Other arrangements, too, were such that spectators who had paid real money for seats in the improvised grandstand were left in anything but amiable tempers. No covering to the stand was provided and as a result patrons simply sweltered. Add to which the stand was situated so that a railroad track was between it and the course and that trains continually were passing, slowly, to allow passengers to see as much of the race as possible, and the excuse for ill humor and criticism becomes apparent. Parking spaces were provided for automobiles, but as no one was on hand to direct drivers, many of whom mired their cars in the sticky mud, discomfort was increased. In spite of the disadvantages, however, there was a really big crowd on hand, the estimated attendance being in the neighborhood of 20,000.

As has been done on several other occasions, both races were run at once, all the cars being started at one minute intervals. In the preliminary examination before the start it was discovered that the seats on Roberts's Abbott-Detroit were arranged tandem fashion instead of side by side as is the usual custom. Judging that the arrangement was unsafe, F. E. Edwards of the Technical Committee of the American Automobile Association, disqualified the car and as Anderson's Stutz had slipped into a mud-hole and could not be extricated in time but ten cars came to the line.

In the first part of the race accidents came thick and fast and before the slippery grind was one-third over the field had been thinned from ten to seven. John Raimsey, pilot of one of the native built Cinos, was the first to have trouble, a blown out tire causing a skid in which the car was overturned and placed hors de combat. Pearce's Colby also suffered ill-luck on the first round, a broken wheel causing the withdrawal of the car. Beyond minor cuts and bruises, no one was hurt. One of the other Cinos, driven by Burke, was put out of the running in the fifth lap by a broken steering gear.

For the first round, Jeffkins kept his Schacht in the lead with the two Ohio cars, driven by Thatcher and Matthews, next, and Burke (Cino) close behind. Hearne in his big Fiat and Jenkins with his Cole, the eventual winners, took things easy until the third lap, when Hearne went to the front with Jenkins close behind him, and they stayed in those positions till the 19th lap, when Jenkins passed Hearne and led for a single lap. Hearne soon caught up, however, and from then to the finish of the 25 laps he led the field.

But six cars passed the finish line, the Ohio car driven by Thatcher having been withdrawn in the 20th lap because of trouble with the transmission. All of the other cars were running well at the finish, the greatest time between any two of them being 13 minutes. Thatcher in an Ohio was second to Jenkins in the shorter race

and Gilchrist (Cino) third. Just 11 minutes behind Hearne, though he had considerable less than half the power, Jenkins was second in the long race, and Harry Knight, with his Indianapolis Westcott, was third; Matthews (Ohio) and Gilchrist (Cino) were fourth and fifth respectively. The summary:

One hundred and fifty miles, class C, under 300 inches displacement—Won by Johnny Jenkins, Cole, time, 2:46:29.84; second, Chas. Thatcher, Ohio, time, 2:51:19.0; third, J. K. Gilchrist, Cino, time, 3:00:28.88.

One hundred and ninety-seven miles, class C, under 600 inches displacement—Won by Eddie Hearne, Fiat, time, 3:29:03.20; second, Johnny Jenkins, Cole, time, 3:40:04.27; third, Harry Knight, Westcott, time, 3:53:38.75; fourth, Harry Matthews, Ohio, time, 3:56:19.58; fifth, J. K. Gilchrist, Cino, time, 4:01:59.60.

A. A. A. to Fight for Federal Aid.

At the September meeting of the Executive Committee of the American Automobile Association, held in New York City, the 39th state association in the national organization was enrolled—the North Dakota State Automobile Association being the addition. It is likely that the 40th state membership will go to North Carolina as the presentation of two new clubs, the Winston-Salem Automobile Club and the Greensboro Automobile Club, together with the Automobile Club of Rowan county now qualifies that state for membership. The Idaho list was swelled by the addition of the Bannock County Automobile Club of Pocatello and an early applicant from Florida will be the recently organized St. Johns County Automobile Association. It also was decided at the meeting that until December Federal aid in inter-state road building becomes an accomplished fact the A. A. A. will hold annual conventions in Washington, while Congress is in session. The object of the conventions is to accelerate the movement already given considerable impetus by the A. A. A. in favor of Federal aid, which recently has been espoused by Speaker Champ Clark and other men on high places.

New Date for Hartford Racemeet.

Although disappointed at not having automobile races during the Connecticut Fair at Charter Oak Park, the Automobile Club of Hartford, Conn., has arranged to have a big meeting next Thursday, 21st inst. The Fair Association had intended making the races a feature of the last day, but rain and mud, on the 8th and 9th inst., caused the closing of the fair before the time scheduled. Ralph De Palma was on hand and was disappointed, of course. Secretary W. T. Plimpton, of the automobile club, brought to the matter to the attention of the contest committee and as the only date De Palma has open is the 21st inst., that day was selected. The meet has the sanction of the A. A. A.

GLIDDEN BEGINS TO LOOM LARGE

Application of New Rules Inviting Amateurs Aids National Tour—Forty Entries and California Referee.

The resemblance of the 1911 Glidden tour to its predecessors has been still further changed. As designated in the original entry blanks, it remains a Grade IV contest, and pretty much everything else in the entry blanks remains unchanged except the reference to stock cars. To enter the tour, the only requisites now are \$25 and a car—whether it is a registered stock car or any other kind of a car makes no dif-

the pathfinding will be resumed with Macon, Ga., as the objective point, Valdosta being reached the next day and the journey being ended at Jacksonville, Fla., on Tuesday, 19th inst.

Indicative of the favor with which the altered conditions of the tour have met, 40 entries already are in hand, and as the entry list does not close until October 1st, it is expected that this number will be considerably swelled before the start is made on October 14th. A large number of the entries are from Southerners, of whom several have participated in South to North tours, and who therefore know the rigors of the road. One of the latest entries received is that of James R. Gray, who has entered a six-cylinder Thomas, which will



A. L. WESTGARD IN FLANDERS STARTING THE GLIDDEN PATHFINDING

ference. Which is to say that the ban on the eligibility of unregistered cars for the Glidden tour has been removed. Acting on the recommendation of the Manufacturers Contest Association, the proposed amendment to the reliability contest rules to permit of the running of sanctioned tours for other than registered stock cars which was to have gone into effect on January 1st, 1912, has been made immediately effective and was put in force on the 8th inst.

Headed by A. L. Westgard, the pathfinding party started from the A. A. A. headquarters in New York in two Flanders cars on Friday last, 8th inst., the first stop being Philadelphia. Gettysburg was reached the following day and on Sunday night, 10th inst., the party rested at Staunton, Va. Roanoke, Va., was reached on Monday, Winston-Salem on Tuesday and Charlotte, N. C., on Wednesday. Today (Thursday) Anderson, S. C., is the destination, and on Friday, 15th inst., the delegation will reach Atlanta, where a stop over Saturday will be made. On Sunday

complete the Atlanta team of three cars, the other two being Major Cohen's White and Inman Gray's American.

Governor Albert W. Gilchrist, of Florida, is the first of the governors of the nine states through which the tour will pass to accept the invitation of Governor Hoke Smith, of Georgia, to be his guest from state line to state line. Governor Gilchrist will join the party as soon as the state line just south of Valdosta is passed. As a further evidence of the interest and enthusiasm which the tour is arousing in the South, the city of Anderson, S. C., has offered a trophy valued at \$1,000, which is to be known as the Anderson South Carolina Cup. The terms upon which it is to be awarded have not been made public as yet. It is expected that similar trophies will be offered from other sections along the line of the tour. The official referee of the tour, who has but just been appointed, is P. J. Walker, president of the California State Automobile Association, who, with his wife, will make the journey from New York to Jacksonville.

TWO DAYS IN ONE AT MINNEAPOLIS

Referee Forbids First Day's Racing, Which is Crowded Into Next Day's Program—Moross's Troupe Performs.

There was some good time made on a bad course on Saturday, 9th inst., at Hamline track, near Minneapolis, Minn., during the racemeet conducted under the auspices of the Minnesota State Fair Association. Moross's racing stable was much in evidence, and Robert Burman with his Benz, and his mates, ran counter to other "stables," which also acquitted themselves favorably. The races were scheduled for Friday and Saturday, 8th and 9th inst., but the poor condition of the mile dirt track, due to rain, caused Col. Frank M. Joyce, first vice-president of the A. A. A., who was referee, to prohibit them on the first day. Consequently a double program was given on Saturday. Heroic methods put the course in fairly good condition but the turns were at no time safe on account of mud near the pole and all cars were compelled to take the center of the track. However, despite this handicap, Burman made two efforts to lower the track record for a mile, created last year by Oldfield in the same Benz, and came close to the goal, doing 50 seconds as against the record of 49½.

Most of the races were spirited contests. The five miles free-for-all handicap proved the most interesting and demonstrated some fine handicapping on the part of the officials. Burman was at scratch and Sandell, Firestone-Columbus, was sent off 50 seconds in advance of him, followed by McNoy, Cutting, 40 seconds; Nyquist, Buick, 35 seconds; Heineman, 30 seconds; Jagersberger, Case, 25 seconds, and Kilpatrick, Hotchkiss, 10 seconds. Burman got a good start, but it was not until the third mile that he began to overhaul those in front. He gradually wore down the leads of all save McNoy, whom he finally collared on the homestretch and beat out by a few lengths. His time was 4:49½. McNoy, Cutting, was second, and Jagersberger, Case, third.

Ray Harroun with the Marmon "Wasp" that he drove to victory at the Indianapolis 500 miles sweepstakes, gave a fine exhibition of speed driving and rapid-fire tire changing. It was a novelty event and proved not uninteresting. After completing the mile circuit twice he brought his car to a stop in front of the grandstands while the mechanics changed a front tire. This was completed in 50 seconds and he then finished the third mile, covering the three miles in 4:45. He also participated in a special three mile race with Heineman, Case. On account of the length of the Marmon, Harroun had to slow up at the turns and Heineman forged to the

front. At the head of the stretch he was several yards in advance but Harroun opened up and crossed the line a victor by 10 yards.

Burman retained the Remy Brassard by winning two straight heats of three miles each, although hard pressed by Lee Oldfield, Mercedes, and Kilpatrick, Hotchkiss, in both heats. Burman also took the five miles free-for-all from his team mates.

The small car race at five miles, which opened the program, was won by Jagersberger, Case. Heineman, his stable mate, was the only other contestant. Jagersberger also won the fifteen miles race from Nyquist, Buick, while Heineman took the five miles free-for-all handicap, in which the Moross stable did not participate. Nyquist, Buick, captured the five miles for class C cars of 301-450 inches displacement. The summary:

Five miles, class C, 231-300 inches displacement—Won by Jagersberger, Case; second, Heineman, Case. Time, 5:27.

Five miles, class C, 301-450 inches displacement—Won by Nyquist, Buick; second, McNay, Cutting; third, Sandell, Firestone-Columbus. Time, 5:44.

Fifteen miles, class E, under 300 inches displacement—Won by Jagersberger, Case; second, Nyquist, Buick. Time, 16:25½.

Three miles with tire change, exhibition—Ray Harroun, Marmon. Time, 4:45.

Five miles, class D, free-for-all—Won by Burman, Benz; second, Lee Oldfield, Mercedes; third, Kilpatrick, Hotchkiss. Time, 5:06.

Mile time trial for track record—Robert Burman, Benz. Time, 0:50¾. Track record, 0:49¾.

Three miles, class D, free-for-all, for Remy Grand Brassard, best two out of three heats—Won by Burman in two straight heats; second, Lee Oldfield, Mercedes; third, Kilpatrick, Hotchkiss. Time, first heat, 3:01¾; second heat, 2:53.

Three miles, special—Won by Ray Harroun, Marmon; second, Lou Heineman, Case. Time, 3:58.

One mile time trial, second attempt for track record—Robert Burman, Benz. Time, 0:50.

Five miles, class E, free-for-all handicap—Won by Heineman, Case (15 seconds); second, Jagersberger, Case (scratch); third, Nyquist, Buick (15 seconds); fourth, McNay, Cutting (10 seconds); fifth, Sandell, Firestone-Columbus (30 seconds). Time, 5:08¾.

Five miles, special, handicap, class C, 301-450 inches displacement—Won by Sandell, Firestone-Columbus (40 seconds); second, Nyquist, Buick (scratch); third, McNay, Cutting (40 seconds). Time, 5:32.

Five miles, free-for-all, handicap—Won by Burman, Benz (scratch); second, McNay, Cutting (40 seconds); third, Jagersberger, Case (25 seconds); fourth, Heineman, Case (30 seconds); fifth, Kilpatrick, Hotchkiss (10 seconds); sixth, Nyquist, Buick (35 seconds). Time, 4:49¾.

A. A. A. OFFICIAL OF RIGHT SORT

Prevents Texas Racemeet Until Track is Made Safe—Then Wilcox and Other Visitors Catch a Native Tartar.

While Robert Burman was taking a fall out of Time at the Brighton Beach races on Labor Day, and J. M. Rutherford and Louis Disbrow were doing the same thing on the beach at Old Orchard, Me., Howard S. Wilcox, of Indianapolis, the National star, and other Western "invaders," were doing good work in the Lone Star State, where, however, they caught something of a Tartar in the person of Carl Reeves, of Midland, Tex., who proved that he could "go some."

The two days' meet was held at Glenwood Park, near Amarillo, and was under the direction of the Panhandle Auto Fair Association of Texas. The track was only recently constructed and by special effort on the part of the officials, assisted by ideal weather, was in almost perfect condition. The racing had been scheduled to begin Saturday, 2nd inst., but on that date, and although there were several thousand people present, R. W. Carr, of San Antonio, state representative of the A. A. A., and a member of the contest board of the A. A. A., would not permit the contests to take place. The course was covered with several inches of dust which he knew would endanger the lives of the drivers should the program be carried out. At first there was angry protest, but believing that the way to prevent accidents is to remove the probable cause, Carr was firm in his declaration that the contest board, when granting a sanction for a racemeet believed that promoters should take every precaution to protect the lives of contestants, and as dust was the greatest of all dangers, he would not permit races on a course where it would be impossible for drivers to see what they were doing. The promoters then dismissed the spectators, refunding the admission price, and immediately had the track well watered and rolled down. This was done again on Sunday morning, and later three car loads of oil put it in good shape. They were well repaid for the work, as it not only put the track in excellent condition, but when the races were run on Monday, 4th inst., and Tuesday, 5th inst. (the latter date being granted by Mr. Carr on behalf of the contest board, on account of taking away the first day), it was fast and the spectators could see the contestants at all times. This was especially interesting, as nearly all of the contests were long ones, the program including two fifty miles races and a hundred miles event. Reeves, the native son, took one of the "fifties" and Wilcox took the other one and also the "century." In every race save one the speed was better than a mile a minute.

The sensation of the racing was the driving of Reeves, who in turn drove an E-M-F and a National, the latter of which was wrecked in the fifty miles race on the last day. While passing the grandstand in the final race, at a rate of more than 72 miles an hour, one of the wheels struck a rough place and the car turned turtle. The automobile was wrecked but Reeves only received a severe shaking up. On the first day he also had a narrow escape.

Wilcox established a track record for two miles at 1:41, which is but 3.11 seconds behind the national record of 1:37.89 held by Burman. The summary:

Monday, September 4.

Twenty miles, free-for-all—Won by Reeves, E-M-F; second, Day, Marion; third, Trippler, Buick. Time, 20:15.

Thirty miles, free-for-all—Won by Monckmeier, Staver-Chicago; second, Nikrent, Staver-Chicago; third, Reeves, E-M-F. Time, 29:06.

Two miles, for track record—Won by Wilcox, National; second, Johnson, Marmon; third, Reeves, National. Time, 1:42.2.

Fifty miles, free-for-all—Won by Reeves, National; second, Wilcox, National. Time, 44:37.

Tuesday, September 5.

Thirty miles, free-for-all—Won by Nikrent, Staver-Chicago; second, Monckmeier, Staver-Chicago; third, Johnson, E-M-F. Time, 28:27.

Sixteen miles, free-for-all—Won by Johnson, E-M-F; second, Trippler, Buick. Time, 15:15.

Two miles time trial—Wilcox, National. 1:41.

Hundred miles, free-for-all—Won by Wilcox, National; second, Monckmeier, Staver-Chicago; third, Mullins, Cadillac. Time, 96:52.

Fifty miles, free-for-all—Won by Wilcox, National; second, Johnson, Marmon, Reeves, National, wrecked. Time, 46:59.

Alco Abandons All Forms of Racing.

With the distinction of having won the Vanderbilt cup two successive years, the American Locomotive Co. is content to rest on its laurels and henceforth Alco cars will be seen no more in road and track events. Although the company but recently formally shied its castor into the racing ring and came out with a stable of three cars, which it was intended to enter in practically every event of importance this year, it has been definitely decided to withdraw. The reason for the action, it is explained, is that racing requires a greater amount of time and attention than the company cares to devote to it. The decision does not refer to properly arranged commercial vehicle contests, however. In appreciation of his services, Harry Grant has been presented with the old "No. 18" Alco with which he won the last two Vanderbilt races.

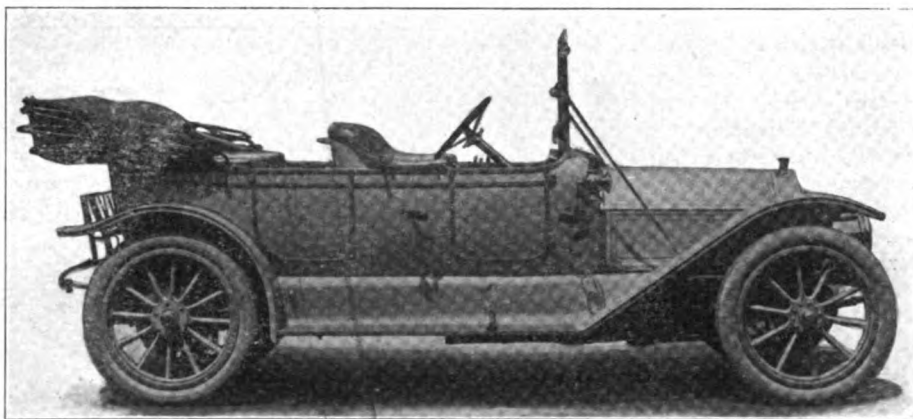
PIERCE ADOPTS REAL LONG STROKE

**New Engine and Clutch Brakes Distinguish Famous Maker's 1912 Cars—
Rich Bodies and Equipment.**

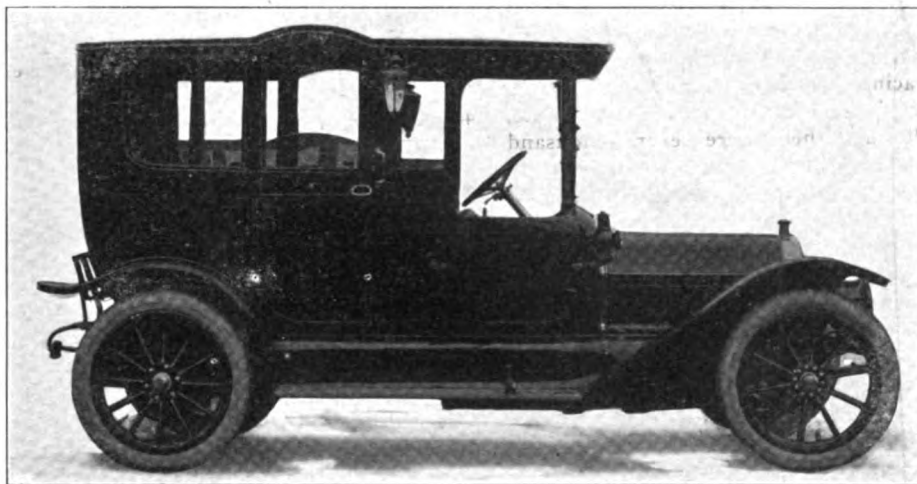
Long-stroke motor practice gradually is gaining ground in the camps of the American designers, even as it has won its way abroad. One of the best evidences in point is that the new Pierce-Arrow 66 horsepower motor is of that variety. The Pierce-Arrow Motor Car Co., of Buffalo, N. Y., is widely known as one of the most prudent of the leading manufacturers of this or any other country, and the few changes in the construction of its product that are announced from time to time are made only after long and painstaking research, and because of the fact, they are of almost world-wide interest. The fact that

is resented in greater degree by the latter type. The cylinder dimensions of the two smaller motors remain the same as at the present time, namely, with bores and strokes of $4 \times 5\frac{1}{2}$ and $4\frac{1}{2} \times 5\frac{1}{2}$ inches, respectively; the stroke-bore ratios being 1.28 and

nificance in a broad sense, since they tend merely to improve the efficiency of an otherwise well-standardized machine. Following the precedent established in 1908 when the trio of sixes first was introduced and the production of four-cylinder models



PIERCE-ARROW 36 HORSEPOWER FOUR PASSENGER TOURING CAR



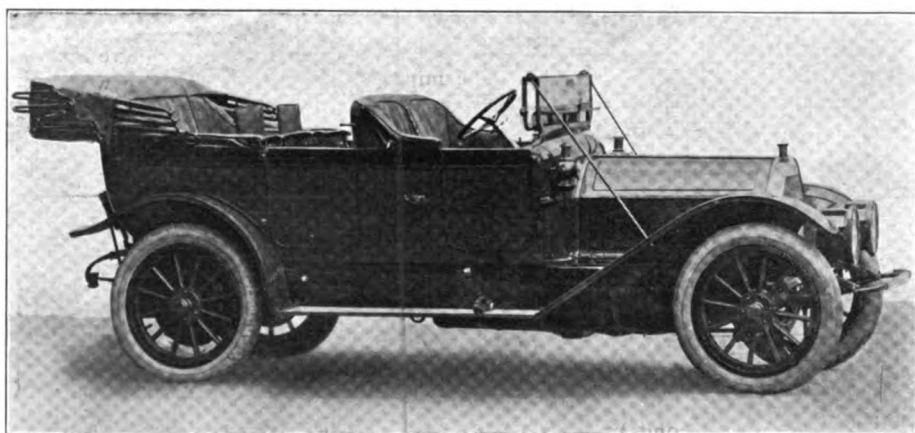
PIERCE-ARROW 36 HORSEPOWER FIVE PASSENGER BROUGHAM

it has adopted for the largest of its three models a motor with cylinder dimensions of 5×7 inches, is occasion for more than usual remark. Last year the bore and stroke of the corresponding motor were $5\frac{1}{4} \times 5\frac{1}{2}$ inches, while the first sextuple motor marketed by the Pierce company—back in 1906, as a matter of fact—had $5 \times 5\frac{1}{2}$ inch cylinder sizes.

The stroke-bore ratio of the "66 horsepower" engine, therefore, has advanced from 1.1 in 1906 to 1.4 at the present time, the model which is about to be superseded the dimensions of which are $5\frac{1}{4} \times 5\frac{1}{2}$ inches, representing the test of a 1.048 ratio. Incidentally, and as illustrating the inaccuracy of the common method of rating, the 1906 and 1912 motors, both of which would be given an output by formula of 60 horsepower, actually have piston displacements of 648 and 825 cubic inches, respectively, and develop unmistakable differences in real power. The slower rotative speeds and strong pulling ability at slow speeds, of course, are advantages pos-

discontinued, the three models are closely similar; they are, so to speak, assorted sizes of the same product, and with a line of nine different body structures which are applicable to the 66 and 48 horsepower chassis, respectively, and five which are adapted to the 36 horsepower chassis, a complete range of 21 distinct and different machines is offered for the selection of the prospective purchaser.

Treating the three chassis as of one-design construction and referring merely to the detailed improvements which are included in the re-drawn specifications of the line, it is noteworthy that about the only discoverable change in engine construction consists of the introduction of a priming device to assist in starting. A hand pump located on the dash is ar-



PIERCE-ARROW 48 HORSEPOWER SEVEN PASSENGER TOURING CAR

1.24, respectively, which puts them into the class of motors commonly recognized as of the long stroke type in this country.

Barring the increase in the stroke of the large motor, the mechanical alterations in the new line of Pierce-Arrow cars, which just has been announced, are not of sig-

nificance in a broad sense, since they tend merely to improve the efficiency of an otherwise well-standardized machine. From this point it is readily swept into the cylinders at the first turn of the starting crank. On the 66 horsepower motor a compression relief valve, which locks open and shut, also has been adopted.

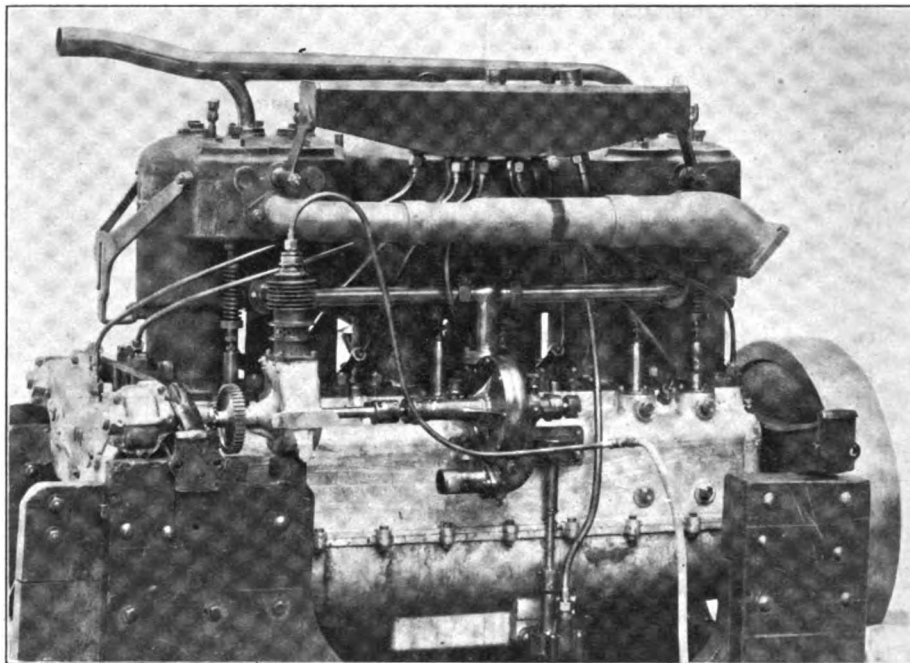
Pierce-Arrow cars have been electrically lighted as regularly equipped for several years, although the current supply for the lamps has been drawn from a storage battery. Provision is now made for the installation of an electric lighting generator, however, although none is regularly supplied. The water pump shaft on the left side of the engine is extended through the pump casing for the attachment of a driving coupling for the generator, while four bosses are cast on the crank case for the purpose of supporting such a device.

The plain cone type of clutch is employed, as before, but it is improved by the addition of a clutch brake to prevent that member from spinning when disengaged from its seat in the flywheel. The braking device consists of a pair of small disks which are mounted diametrically opposite one another and against which the rear face of the cone bears when fully withdrawn from engagement. As heretofore, a four-speed selective type of gearset is employed, which is mounted in the waist of the chassis. Its actuation is safeguarded by a clutch-interlocking device to prevent the movement of the shifting lever at all times save when the clutch is out of engagement.

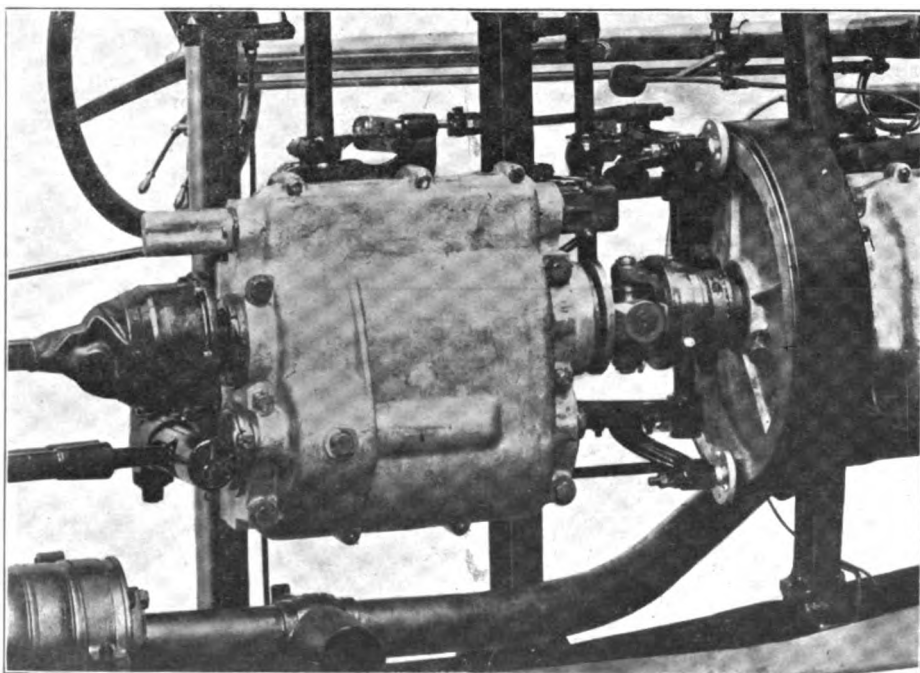
Another of the chassis alterations is the lengthening of the rear spring members on the 48 and 66 horsepower models by four inches and the lowering of the arch

of the current models, with the exception of the 36 horsepower runabouts, which now have 127½ inch wheel base instead of 125. The tire sizes for the small runabout likewise have been increased from 36 x 4 inches to 36 x 4½ inches, while those of the 48 horsepower touring and enclosed

oiling system with distribution through the hollow bore of the crank shaft and pump return to the elevated reservoir, double ignition, paired cylinder castings of T-head form, telescopic exhaust manifold with selector effect, automatic carburetter and power-driven air-pump for tire inflation



LEFT SIDE OF MOTOR SHOWING MECHANICAL TIRE PUMP



VIEW OF GEARSET FROM BELOW SHOWING NEW CLUTCH BRAKE

of the three-quarter elliptic spring members. This change, coupled with a shifting of the attachment of the upper quarter spring from the top of the frame sills to an outside position level with the chassis, contributes to easy riding and also harmonizes well with the new body designs.

The wheel bases remain the same as in

models have been increased from 36 x 4½ inches in front to 37 x 5 inches, making them equal to those in the rear. The large chassis, when furnished with touring and enclosed bodies, still is equipped with 37 x 5 inch tires in front and 38 x 5½ inch in the rear.

Such engine details as the gravity-feed

purposes are retained. The double-jointed propeller shaft with separate torsion bar semi-floating rear axle, external-internal rear wheel brakes, designed to be independent of spring movement in their action, and other characteristic features likewise are unaltered.

In the design of the new bodies, however, considerable changes are involved, changes which not only bring the line up to date in every respect, but which in several ways are in advance of the practice of other manufacturers, judged from the motorist's own point of view. Thus the emergency brake and gear shifting levers have been brought inside the front doors of the closed-front bodies, whereby the bodies have been considerably widened. Instead of now seating directly on the frame members, the bodies therefore project slightly and are supported by plates extending over the frames. The doors are absolutely flush and present an unbroken exterior effect, while by dint of some little contriving the running boards have been cleared of cluttering miscellany, only the spare tire carrier remaining.

To effect this improvement the batteries have been stowed away in a compartment under the body, while the tool kit has been removed from its former compartment under the front seat and placed in a receptacle built into the apron that extends from the body to the running boards. By this means room for an additional supply of

gasolene has been obtained. The sides of the bodies now are nearly vertical and the additional interior space afforded is divided between additions to the dimensions of the seats and an increase in the thickness of the upholstery.

One of the body details of pleasing effect, both visible and comfort-carrying, is the treatment of the dash. The concave or slightly hooded pattern is employed, but the molding of the surface has been carried out in such a way that the graduation from the hood to the surfaces of the body proper is accomplished without the awkward break in continuity which commonly is encountered. A profitable innovation in this connection is the introduction of a novel form of dash ventilator which is ar-

for emergency accommodation in all enclosed cars which nominally are of five-passenger capacity.

Like the touring models, the enclosed car designs newly adopted are not without novel features. One of the most striking points is the treatment of the side doors, which are full length and built with arched tops. To meet the added height of the doors, which is greater than that of the roof edge, a swelled surface is employed with a mild suggestion of dormer effect. The general style of the enclosed bodies harmonizes with that of the touring models and is equally clean and artistic.

The equipment is absolutely complete, including, besides items which usually are classed as extras, such little conveniences

three exceptions. The 36 horsepower landaulet is now listed for \$4,900 instead of \$5,000, while the 48 and 66 horsepower landaus now list at \$6,100 and \$7,100, respectively, which is \$100 less than their former price.

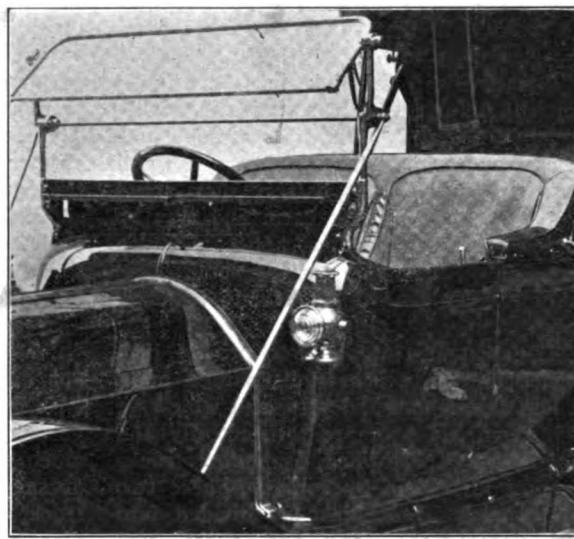
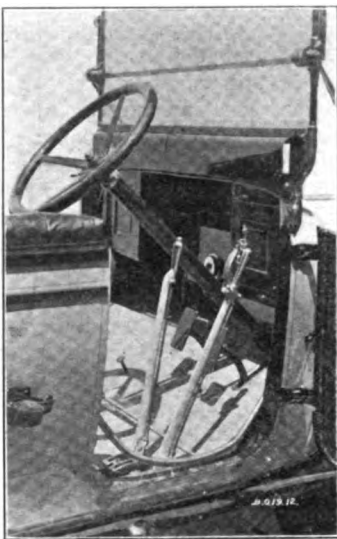
Where Brandt Found Price No Barrier.

With all confidence in his heart as to the merits of his offering, it nevertheless was a decided surprise to Ernest H. Brandt, one of the division chiefs of the United States Motor Co., when he went down South recently and found that the Southerners think no more about paying \$5,000 for a big car that they like than they do about paying \$1,000 or \$1,500 for a smaller car. In fact he was amazed to find the extent to which price is ignored as a deciding point in relation to big cars, not only by Southerners but by practically everybody in the big car class.

"Most of my many years experience in the automobile field have had to do with medium and low price cars," Brandt said, in telling of his Southern trip in connection with arranging distribution for Stoddard-Dayton six cylinder cars with Knight engine. "In the last few years I have found that buyers of cars in the lower range of price compare prices very closely, and that a difference of even a few dollars may decide them one way or the other. It has been quite a different atmosphere for me, and quite a relief, to find that in this great country of ours there are thousands of people who do not question a price so long as the car itself is what they want. A thousand dollars more or less seems to make no difference to them. All they care about is that the car is what they want. It goes to show that manufacturers are safe in going ahead and developing new and radical improvements, and that if the improvements are real and important, the price will not be a stumbling block so far as big car buyers are concerned."

Engineers to Visit London in a Body.

Instead of going to the London show severally, it is probable that the American engineers who attend that function in November next will go jointly. The Society of Automobile Engineers has the matter in hand and as a sufficient party already practically is assured, the organization is making the necessary arrangements and is preparing to clasp a kindred hand across the sea, with the Incorporated Institution of Automobile Engineers, which will act the host on the "other side." In addition to the Olympia show, the more notable British factories and garages will be visited, likewise the Brooklands track and other points of automobile and historic interest: it is possible also that the visitors will devote one evening to technical discussion with the British organization. Afterward there will be a trip to France to visit a number of the more important automobile factories in that country.



PIERCE-ARROW FORD COMPARTMENT VENTILATOR ARRANGEMENT

ranged to afford ample cooling for the front compartment of the closed-front bodies but without unpleasant draughts. With this object, an opening is provided in the baseboard of the windshield, which extends for almost its entire length, and which is regulated by shutters on the front side. On the back side is a deflector vane which directs the inflow in a downward direction and so prevents a direct blast of air reaching the occupants of the front seats, while at the same time delivering a constant supply of fresh air to that portion of the vehicle in which ordinarily the degree of circulation scarcely is perceptible.

Another of the improved body details is the folding seat arrangement, the extra seats on the seven-passenger bodies being of such construction that while there are no obtruding supports to interfere with the feet of the passengers on the rear seat, they are of ample size and provided with comfortable arm rests. When out of use the spare seats may be folded against the side of the tonneau, three motions only being required to effect the change. The seats are locked when folded. Similar construction, but minus the arm rests, is used

as a device for lighting the gas headlights without leaving the driver's seat, sprags on all cars except those of 36 horsepower, the gasolene primer already described, and Yale locks fitted with a universal key which protect the hood, dash cabinets, tool compartments and Prest-O-Lite tank enclosure, which, as heretofore, is carried below the body. Standard equipment features include, in addition to the lighting outfit—gas headlights, combination oil and electric side and tail lamps, and electric number illuminator—a horn mounted inside the hood, "rain vision" style windshield, power tire pump, gasolene tank gauge mounted on the dash, shock absorbers, odometer, body fittings complete and a full set of tools.

Three-passenger roadsters, four-, five- and seven-passenger touring, broughams, landaulets, "suburban," landau and "vestibule suburban" bodies comprise the style list, these nine patterns being made for both 48 and 66 horsepower chassis, while the 36 horsepower chassis may be equipped with either three-passenger roadster, four- or five-passenger touring, brougham or landau bodies. The prices, ranging from \$4,000 to \$7,450, remain unchanged with

THE MOTOR AND THE MOVING VAN

Peculiar Conditions Affecting That Form of Vehicle and How They May Be Met—Lloyd's Opinions.

"Moving day" has lost some of its terrors—for the moving man—since the advent of the motor-driven van. For the members of that calling have not been particularly slow in making use of its advantages. Just how far it may be applied with economy and in what respects its use in the moving and storage warehouse business differs from that of other enterprises in which transportation plays an all-important part is a question which is ably discussed by Robert McA. Lloyd, vice-president of the General Vehicle Co., in that company's house-organ, "Elec-tricks." That Mr. Lloyd exhibits a decided leaning toward the peculiar advantages of the electric vehicle is natural, but it is noteworthy that in pointing out the especial fitness of the gasolene-propelled machine for long-distance haulage he treats what is sometimes considered a rival form of equipment in a perfectly fair manner.

"While I cannot speak with authority on the subject I venture to say that the average New York family moves oftener than any other family in the world, and it is natural that moving and storage facilities should have received the greatest amount of study in our city," says Lloyd. "The wagon or van drawn by horses has assumed a standard size and shape and the modern storage warehouses have features of design and equipment that possess similarity, which is doubtless the result of experience.

"The automobile builder has a simple problem in getting a suitable body for the moving van. The van body now used in New York for this work meets the requirements of the warehouse people. Its dimensions are satisfactory and it has good, big, smooth sides for display advertising. It has become the unit of measure for household goods. . . . I may say, furthermore, that the moving men as a rule are conscientious in their desire to get full measure into it, even if by so doing they break the legs off the tables and all the knobs off the sideboard.

"The change in motive power from horses to electricity or gasolene does not necessitate any change in the design of the standard van body, and it is not desirable to make it lighter or to put into it inferior workmanship or material, as the strains and shocks to which it is subjected are at least as severe where the vehicle is self-propelled as when drawn by horses. As a matter of fact these increase in proportion to the speed of operation.

"Assuming that the van body is now satisfactorily standardized for present pur-

poses, we have three kinds of power to select from—horses, electricity and gasolene. If we consider all of these without prejudice or sentiment we may be led to the conclusion that none of them is ideal for all purposes.

"There are doubtless a great many vans which are only used a few days in the year—in the months of May and October. It is not necessary to keep horses all the year round for these vans; they can be hired when wanted, and for long idle periods the vans may be stored at small expense in a vacant lot. It is difficult to estimate any advantage at the present time in substituting expensive motor vans for these, but the time is fast approaching when it will be impossible to secure sufficient horses for these vans when wanted, and when that time arrives the advantage will be with the motor van that suffers the least deterioration when idle.

"I am inclined to think that the electric van will suffer the least, as it is reasonable to suppose that by that time storage batteries may be hired for temporary use and that the van without battery may stand idle indefinitely without harm and may be started at a few minutes' notice, whereas the gasolene van will require some overhauling every time it is put into commission.

"The second class of work to be performed is that which is distributed more or less throughout the year, and which we all believe can be more satisfactorily and economically performed by motor trucks of some kind than by horses. These two classes each again must be divided into two classes, the long and short haul classes. The electric truck depending on storage batteries is limited in its radius of action from a charging station, but it has the advantage over the gasolene truck in simplicity, reliability and economy of operation, together with considerably less fire risk. It meets the requirements of all city work and a certain amount of suburban work.

"The gasolene truck is not limited in its radius of action and for that reason it is the only substitute in sight for horses on long country trips. It is a convenient addition to the equipment of a moving or warehouse business, but in many cases it is a serious question as to whether it pays to substitute it for horses for the short season in spring and fall when people are moving to and from distant country places, and the owners of gasolene vans endeavor to find other work for them sufficient to keep the investment active during a greater part of the year. It therefore becomes a competitor of the electric van in city service even if not purchased for that service.

"In comparing the relative merits of gasolene and electricity for the motive power of moving vans, we may point out that to carry a given load both vehicles should have the same wheels, axles, springs,

brakes, steering gear, driving gear and chains, frame and body, and that it is simply a question of which power plant is best for the work to be performed.

"On the one hand we have the storage battery, electric motor, controller and wiring, and on the other hand the gasolene motor, carburetter, fuel tank, magneto, ignition battery, radiator, cooling fan, oiling system, clutch, change gear, muffler, piping and wiring.

"The weight of the gasolene motive power is about the same as the electric. The gasolene fuel costs more for a given amount of work than the electric. The gasolene motive power requires more skill to operate. The cost of inspection and adjustment is greater for the gasolene motive power. The cost of replacing worn out parts over a long period is greater for the gasolene motive power. The liability of breakdown is greater in the case of gasolene motive power. The fire risk is greater for the gasolene motive power. The wear and tear on the wagon itself is greater for the gasolene for the reason that the gasolene power possesses greater possibilities for speed and greater strains are therefore suffered by it. Therefore, its tires, brakes, steering gear, etc., cost more per mile than those of the electric.

"I cannot imagine any possibility of operating a gasolene truck at as low a cost per mile or per day as an electric truck. I do not say that it does not pay to run a gasolene truck. That depends on how much you can obtain for the service, but I do say that it pays better to run an electric truck, providing, of course, that the service is within its radius of action. The gasolene truck should be kept as much as possible in long haul service and a higher rate per mile should be obtained for it.

"The electric is reliable for operation within a circle of 20 miles' radius, and I should estimate that 80 per cent. of the work done by moving vans for warehouses in New York is within this circle. If a man has a small business and can only use one wagon, with which he is obliged to make both long and short trips, the gasolene wagon is the only one which can do them both, but he should be very watchful that the profit made on long trips is not entirely absorbed by the loss on short ones.

"Motor vehicles, both gasolene and electric, have arrived at a state of perfection and standardization which makes it no longer necessary to view them with suspicion. Their merits and their faults are known. The fallacy of the cheap and poorly constructed vehicle has been laid bare. The dreams of storage batteries with unlimited capacity and gasolene engines that run forever without oil have been written off the books of manufacturers and users. The warehouse man recognizes the fact that automobiles that are worth having are not given away. Good ones involve a considerable investment and they cost money to maintain."

IMPROVEMENT OF THE LOCOMOBILE

Not Much Room for It, Most of It Being Centered on Rear Axle—Two New Body Styles.

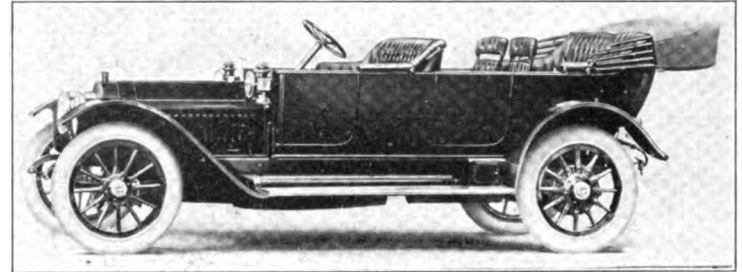
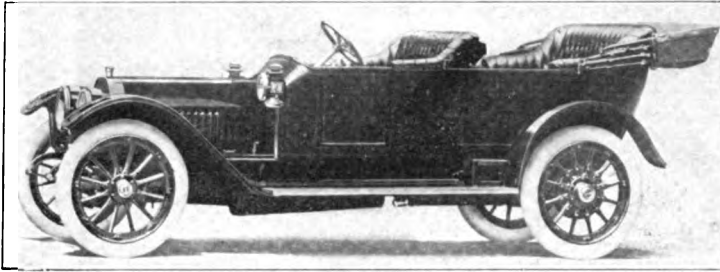
Following the general tendency toward greater strength and accessibility of parts, the 1912 Locomobile "six," which just has been announced by the Locomobile Co. of America, embraces a brand new one-piece

styles, an inside driven coupe and a berline limousine, have been added; either of the new bodies may be had on the four or six cylinder chassis.

In the six cylinder chassis itself, the new rear axle housing which has been adopted is the most important change which has been made. As heretofore, the live axle is of the full floating type; differing from former practice, which embraced the use of a two-piece axle housing bolted together at the center, however, the new housing is a

lar torsion member formerly used has been replaced by one of pressed steel.

In general appearance the power plant of the 1912 "six" differs little from that of its predecessor. The same type of $4\frac{1}{2} \times 4\frac{1}{2}$ T-head cylinders, cast in pairs, is used, and the rigid manganese bronze crank case which for years has been a feature of Locomobile construction remains. Similarly, the distinctive Locomobile splash and force-feed oiling system has been retained, the connecting rod big end bearings being fit-



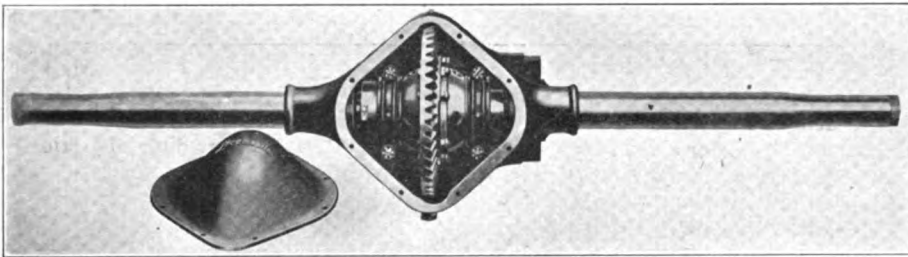
LOCOMOBILE FIVE PASSENGER TORPEDO MODEL, AND SEVEN PASSENGER TOURING CAR ON SIX CYLINDER CHASSIS

rear axle housing, which is a radical departure from its former practice. Except for this change and a few minor refinements of motor and chassis, which, while scarcely noticeable to the casual observer, nevertheless are indicative of the ceaseless effort to improve an always dependable and high

one-piece steel casting. The alloy steel tubes on which the weight of the car is carried are hydraulically pressed into position, and though it is stated that brazing is not necessary, as a further precaution against strain, the tubes are riveted in place. Obviously the new construction permits a

ted with small scoops which dip into troughs, the splashing of excessive quantities of oil onto the cylinder walls and the resultant smoky exhaust being prevented by suitably placed baffle plates.

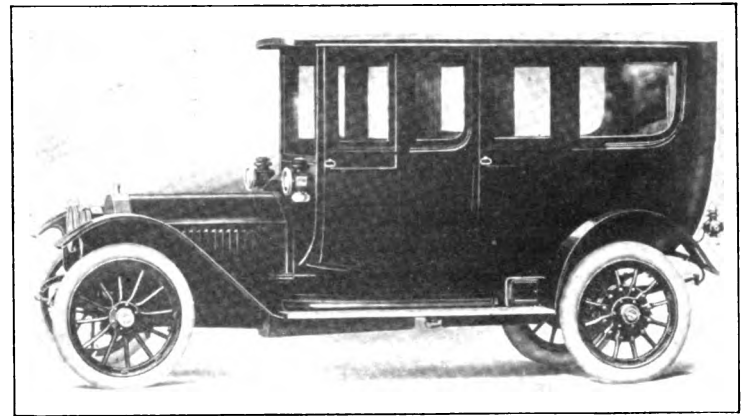
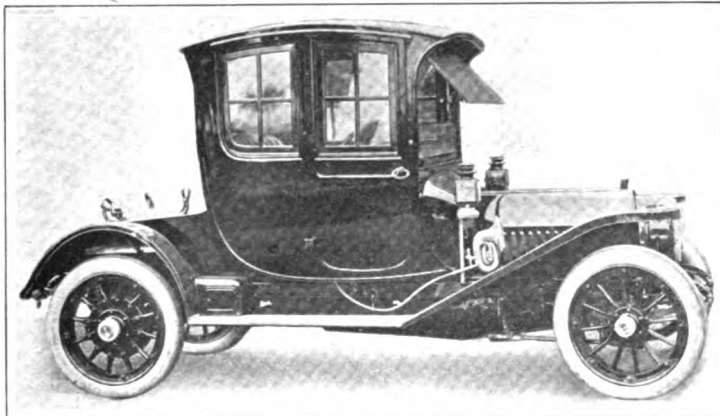
In order properly to secure the large spiral gears in the cam shaft train, a slight improvement in the method of their attachment has been made. The new cam shafts terminate in a large flanged face-plate which fits into a corresponding recess in the gear hub. The face-plate on the cam shaft and the gear wheel then are firmly bolted together by means of four cap screws widely separated, the screws afterward being wired to preclude the possibility of their becoming loosened. The resultant coupling is such that the gears are held absolutely rigidly in place and the side thrust inevitable with large spiral gears cannot alter their position. One of the smaller detail refinements, which is none the less important, is that the magneto coupling, as heretofore of the universal jaw type, is enclosed in a grease packed housing. As the housing is perfectly tight it does not require frequent attention.



NEW LOCOMOBILE ONE-PIECE CAST STEEL REAR AXLE HOUSING

grade car, the "six," which made its first appearance last year, will be continued practically unchanged. The four cylinder chassis also will be continued and it will remain even more like its predecessors than will the newer model. But supplementing the regular Locomobile line, two new body

greater factor of strength while at the same time the differential mechanism is made very much more accessible, a large opening in the rear of the housing ordinarily covered by an aluminum plate, permitting its parts to be reached easily. Another change in structural detail is that the tubu-



TWO NEW LOCOMOBILE BODY STYLES, THE INSIDE DRIVEN COUPE AND BERLINE LIMOUSINE

The same four speed selectively operated change gear mechanism which has been used for the past six years is a feature of the 1912 models, and as heretofore it is enclosed in a manganese bronze case. Similarly the control mechanism, such as gear shift and emergency brake levers, and throttle and spark advance levers, remain

unchanged, though the type of accelerator has been changed slightly to afford greater ease of control. The tread of the new accelerator consists of two knurled rollers against which the sole of the driver's foot rests and which turn when the pedal is depressed. The possibility of the driver's foot slipping off the pedal, which might happen with the ordinary type of flat tread accelerator, thus is obviated.

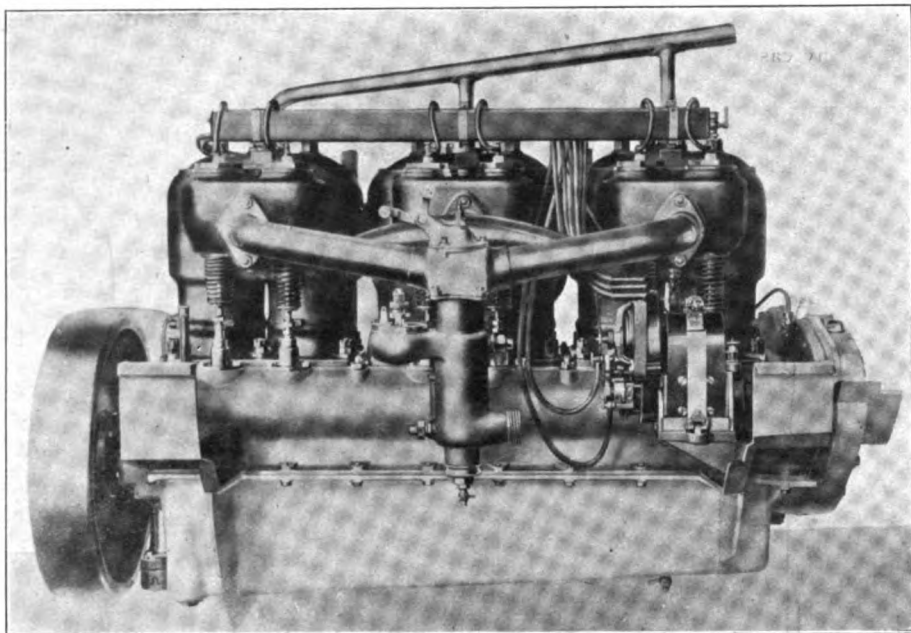
entrance and exit, the auxiliary seats are automatically locked in position when folded back. The wheel base of both the "six" and the "four" remains unaltered, the former being 135 inches and the latter 120 inches; 36 x 4½ inch tires replace the 36 x 4 front tires formerly used on the six cylinder models,

seven-passenger touring car, or the four- or five-passenger torpedo, to \$6,050, \$6,150, and \$6,250 for the limousine, landaulet and berline, respectively. The four cylinder model also is furnished in six body styles, which range in price from \$3,500 for the touring car to \$4,800 for the berline, the price in all cases including complete equipment, embracing demountable rims and top. As heretofore high tension ignition is used exclusively.

New York's 1912 Tags Nearly Ready.

If preparedness will prevent it, Secretary of State Lazansky, of New York State, does not mean that there shall be such a rush of motorists to his office as heretofore has been the case when the time arrived for the annual change of number plates. To that end, about October 15, he will send out notices to the holders of registration cards information as to where they may get the plates.

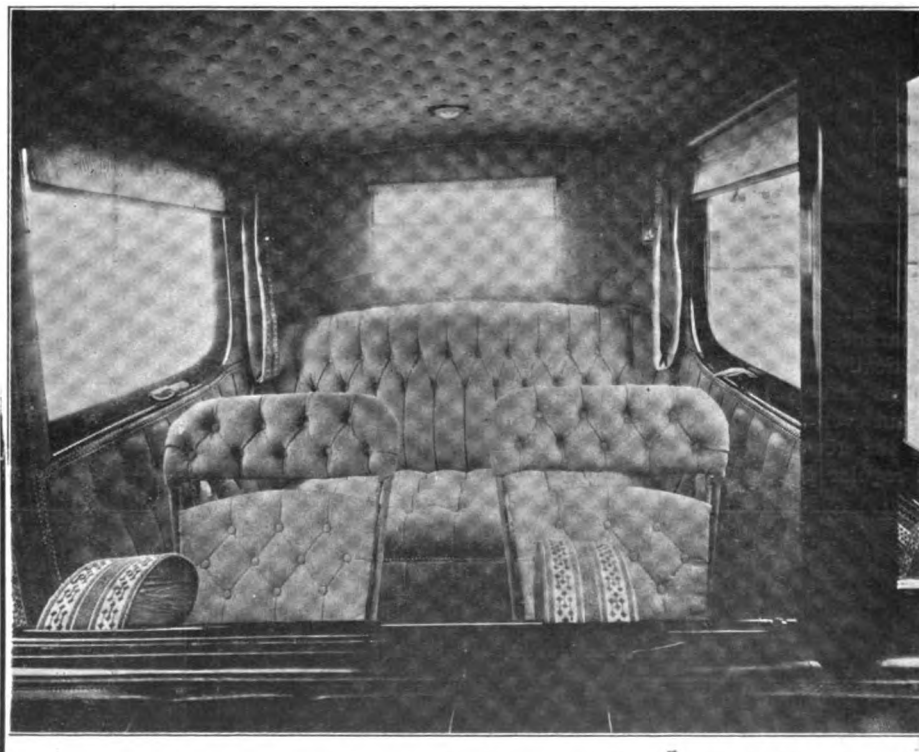
Plates for the year 1912 will be ready by that date, and although it will not be necessary to display them on automobiles until February 1 of next year, it is hoped that before that time all of the 82,000 owners in the state will be possessed of their numbers. Next year's plates will be of red fused enamel, with the numbers in white enamel, and they will be of a much better quality than those which were supplied for the year 1911. They are now being made



INTAKE SIDE OF 1912 LOCOMOBILE SIX CYLINDER MOTOR

Except for the fact that the outsides of touring bodies have been made rather smoother than usual, the use of concealed door hinges and top latches furthering the effect, little change in general styles has been made. Running boards have been cleared, and thus may serve for the reception of suit cases or trunks, such items of equipment as tools and batteries being stowed in commodious spaces under the seats, and tires being carried at the back of tonneaux.

With a view to providing the acme of luxurious riding, particular attention has been paid the upholstery in all models. Seat cushions as well as the backs of the seats are 10 inches thick and are composed of springs and long white curled hair. The seven-passenger cars are equipped with the usual folding seats, though those in the new models are of a unique pattern. The bottoms are well upholstered but the backs are composed of a flexible leather strip which adjusts itself to the position of the occupant of the seat. Permitting of easy



LOCOMOBILE LIMOUSINE INTERIOR SHOWING AUXILIARY SEATS

the tire equipment on all the other models remaining 34 x 4½ all around on the four cylinder models and 37 x 5 on the rear of the "sixes." Six regular styles of body are made to fit the six cylinder chassis, and they range in price from \$4,800 for the

by the Manhattan Supply Co., in New York City, and will cost the state 39.6 cents each, whether it be for duplicates or original numbers. In anticipation that there will be an increased sale of cars, Mr. Lazansky has ordered 85,000 of them.

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Methods of Magneto Mounting and Their Effects

Probably the greatest step forward in the development of the internal combustion motor for automobile use was made possible by the introduction of the magneto for ignition. If magnetos had been used from the first it is very probable that present day motors would have presented a considerably altered appearance at least, and, in view of the continual improvement which is being made in magneto ignition apparatus, it is not difficult to trace the causes of the greatly increased efficiency of present day engines.

Keeping step with the perfecting of magnetos, and ignition apparatus in general,

neto, and consequently manufacturers often were forced to place them where they could, irrespective of other conditions. That in many cases they failed to work, or that when they did work results were far from satisfying, scarcely is to be wondered at.

But if early designers underestimated the importance of placing the magneto so that it was accessible and also so that the wire leads to them should be as short as possible, to prevent the current leakage inevitable with festoons of wiring, there were other considerations which were overlooked as well. The most important of

magneto is real has been made patent on more than one occasion. Obviously the real danger exists not when the car is in motion, as there then is a considerable draft under the hood, but rather when the car is at rest and the engine is being started. In this respect, owing to the tendency of some carburetters to flood or drip, they often are the principal source of danger, and even though the magneto were on the opposite side of the engine in such a case, the danger still remains, though in a lessened degree.

To the question of proper and efficient drives, which early designers were wont to

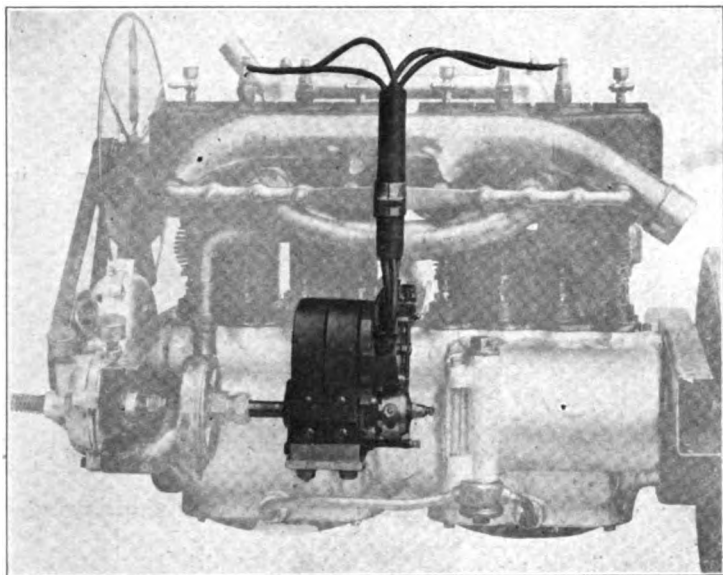


FIG. 1—DISPOSITION OF HIGH TENSION WIRES ON E-M-F MOTOR

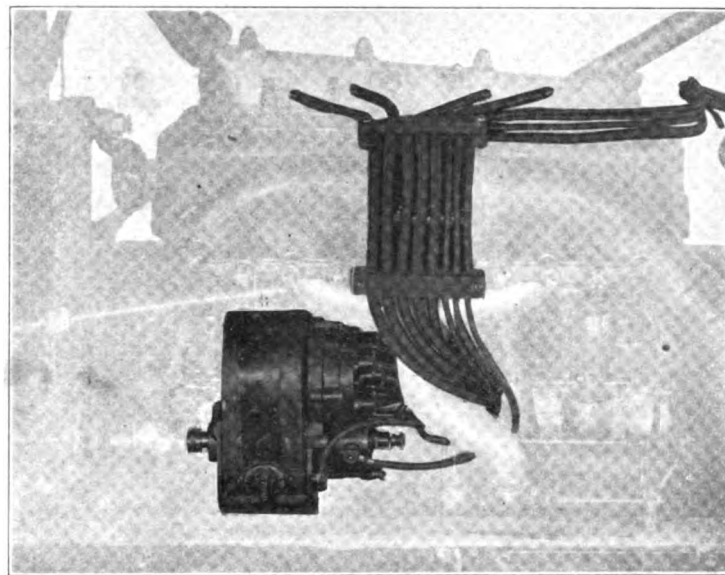


FIG. 2—ARRANGEMENT OF WIRING ON FLANDERS MOTORS

the solving of the problem of where and how best to locate the magneto, and component parts of the rest of the ignition system, such as wiring, commutators, switches, etc., has been none the less important, though its actual importance often is overlooked. That the importance of the proper location of the magneto should be underestimated is, perhaps, not difficult to understand in view of the fact that as the wires by means of which the ignition current is conducted to the spark plug are flexible and therefore may be bent and trailed almost at will, it apparently is possible to place the magneto almost in any position and obtain results, provided only that it is so placed as to be easily attached to the driving member. Which, briefly, was the hypothesis on which magnetos were fitted to many of the old cars. Also the fact that in the designing of the earlier engines no provision was made for a mag-

these was, and in many cases still is, the possibility of fire resulting from the juxtaposition of carburetter and magneto.

Just how far the practice of placing the carburetter and magneto together has been carried is evidenced by a census of 60 cars which was taken at one of the recent New York shows. Of these 60 cars, 27, or 44 per cent., had the magneto mounted on the same side of the engine as the carburetter. But though a fairly large percentage of manufacturers incline to this arrangement, a still larger percentage favors the isolation of these parts, 21 engines having the magneto located on the right side with the carburetter at the left and 12 having the reverse arrangement. Thus the totals reveal a majority of 33 types, or 56 per cent., in which the carburetter and magneto are on opposite sides of the engine.

That the danger of fire as a result of a too close arrangement of carburetter and

pay little attention, the modern designer has devoted a greater amount of time and energy than at first might be suspected. Naturally with the development of magnetos, methods of mounting have been perfected, and though practically every engine which now is manufactured is provided with a bracket or base suitably located to make connection easy, it is only comparatively recently that the actual means of coupling the driving and driven members has been perfected. It may not be generally known that by reason of the structure of magnetos, the rotation of the armature is easy and hard alternately, according to the position of the armature with regard to the magnets. The pull on the driving member therefore is intermittent and is as a series of jerks rather than a steady pull. On the theory that the continual dropping of water will wear away a stone, it is entirely within reason to sus-

pect that the continual jerking, even though it is slight, may cause uneven wear or the loosening of fastenings which would be practically unaffected by a steady load. That such is the case is evidenced by the fact that not a few manufacturers use magneto couplings which are in effect universal joints. Their use in this respect permits of the magneto getting out of line temporarily without the disastrous results which might accrue if a rigid coupling were used. Similarly, several forms of spring drive, in which the effect of a universal joint is obtained, recently have been evolved, the result being that the probability of fractured magneto shafts of bound bearings is considerably lessened.

Generally, magnetos are driven from the cam shaft, as this arrangement permits the

a metal strap over the magneto, as shown in the Flanders arrangement illustrated in Fig. 2; in some cases both bolts and a strap are used, though generally reliance is placed on either one or the other alone. With the strap arrangement small pins generally are used to prevent the magneto shifting, the pins fitting into holes in the magneto base.

In the mounting of the magneto on Flanders engines, the pump shaft also is utilized to drive the magneto armature, the principal point of difference between the two drives being that in the Flanders arrangement there is a bearing between the pump and the magneto. Though the ignition system in both E-M-F and Flanders cars is practically identical, and embraces a Splitdorf low tension magneto with dash

the reluctance of some manufacturers to "put all their eggs in one basket," though the merits of the expedient have been proven, is evidenced by a continuance of the practice of supplying two independent and separate ignition systems. Undoubtedly two systems entail greater complication than one, but this is more than offset by the added security of the two in precluding the possibility of involuntary stops caused by ignition failures.

The Bosch double system, embracing a high tension magneto for one set of plugs and a distributor and timer combined, operated by a storage battery and coil, for another set, is shown in Fig. 4, as regularly supplied on Columbia poppet valve motors. The magneto is driven directly from the cam shaft gearing, and is held in position

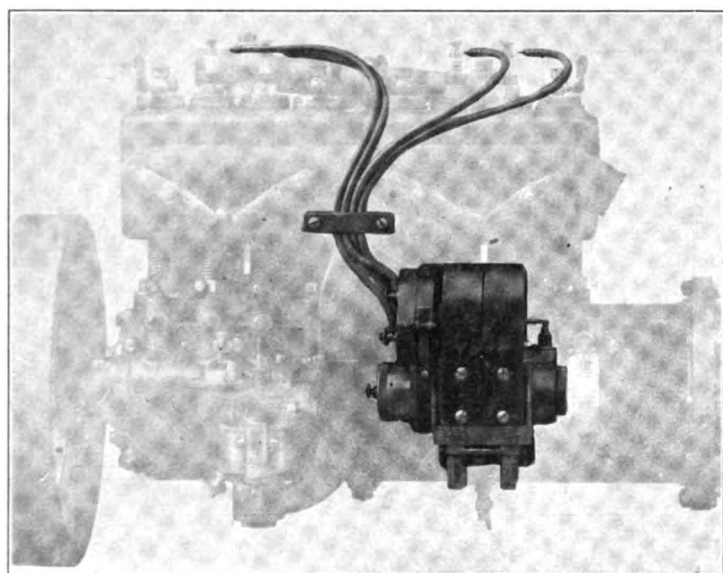


FIG. 3—SIMPLICITY OF HUPMOBILE SET SPARK SYSTEM

use of a smaller number of gears in reducing the armature speed to half that of the crank shaft speed. One of the most popular arrangements is that in which the shaft which drives the magneto also drives the water circulation pump, the magneto shaft being in effect merely a continuation of the pump shaft. Such an arrangement, illustrative of E-M-F "30" practice, is shown in Fig. 1, and it may be seen that both magneto and pump are instantly accessible, while at the same time the distance which the ignition wires have to be led is comparatively short.

As important as is the coupling of armature shafts to the driving member, however, the method of attaching the magneto rigidly to its base is of equal importance, as it may readily be appreciated that, if the magneto should shift, shafts would be thrown out of line and direful results would follow. In the E-M-F engine, and also in a large number of others, the magneto is simply bolted down by means of cap screws passed up through the bracket. An alternate method embraces the use of

transformer and non-vibrating coil, the arrangement of wiring is quite different. Both sets of wiring are shown on the Flanders engine, one set going to the plugs and the other to the transformer, whereas in the picture of the E-M-F engine only the high tension wires leading to the plugs are shown.

Probably the simplest form of ignition apparatus extant is embraced in the set spark system, in which dependence is placed entirely on a high tension magneto, batteries being omitted. Such a system, composed of a Bosch magneto, four wires and four plugs, is used on Hupmobiles, as shown in Fig. 3, and the simplicity of the arrangement is self evident. In the arrangement of the magneto drive the pump shaft is not utilized as it is in other makes of cars. The magneto is driven directly from the cam shaft gears, and the driving shaft is of the minimum length owing to the proximity of the magneto to the front gear train.

Though the tendency toward set spark high tension magneto ignition is increasing,

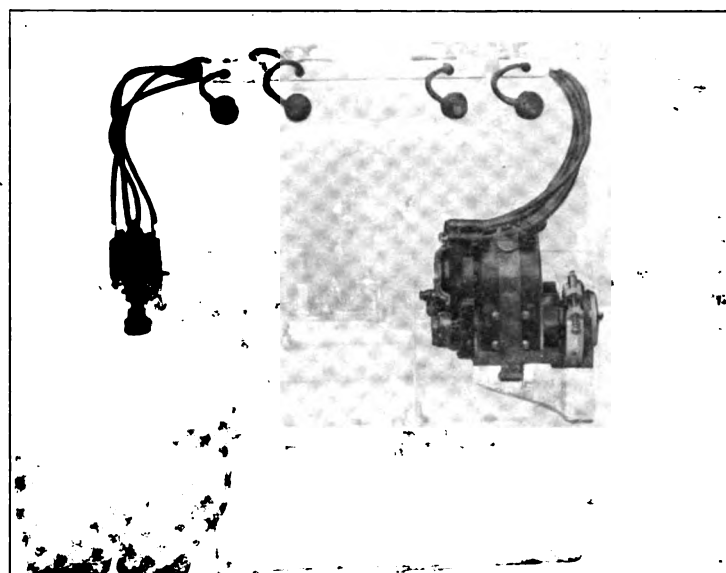


FIG. 4—EFFECTIVE WIRING OF COLUMBIA DOUBLE IGNITION

by a metal strap which is tightened by means of a winged thumb nut, the removal of the magneto therefore being a comparatively simple matter. From the magneto the high tension wires are led to a manifold on top of the engine, whence they emerge directly over their respective plugs. The combined timer and distributor, also of Bosch manufacture, is located at the opposite end of the cam shaft at the top of a vertical shaft, by means of which the oil pump is operated. To avoid confusion, and also better to insulate them, the wires from the timer-distributor are led through a separate manifold, also on top of the engine, and like the others they are let out exactly at the plugs to which they are to be attached.

An unusual method of steadying a magneto, which, as well as assisting to hold it in position also operates to discourage any tendency toward vibration and consequent loosening of the holding down bolts, is used on Kissel engines, and is illustrated in Fig. 5. Conforming to general practice, the magneto is driven from the cam shaft

gears by means of the same shaft which operates the water pump and is fastened in position by means of cap screws through the bottom of the bracket. Over the magneto and bolted to the cylinder casting, a small bracket carries a yoke which fits transversely over the center magnet and is tightened against it by means of a bolt, the security of the adjustment being insured by a lock nut. The magneto forms part of the standard Bosch dual system.

The method of holding a magneto in position by means of a metal strap, which arrangement has attained considerable popularity, is shown clearly in Fig. 6, in which the manner of mounting the Splitdorf magneto on Velie engines is illustrated. The popularity of this method is due principally to its simplicity and the

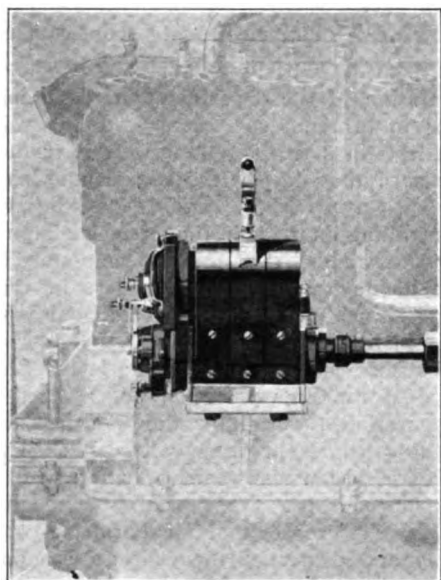


FIG. 5—BRACKET MAGNETO STEADYING DEVICE ON KISSEL ENGINES

easy and quick manner of removal of the magneto which it provides. In the Velie arrangement the magneto is driven from one end of the pump shaft; mounted vertically near the opposite end of the shaft, from which it is driven by means of bevel gears, a second shaft carries an Atwater-Kent timer-distributor which operates through a second set of plugs, making a second independent ignition system.

In the Rutenber motor, which is used by a number of car manufacturers, the method of driving the magneto armature is quite different from the usual practice and involves a number of unique features. The magneto is mounted near the front of the engine and at the right side, as shown in Fig. 7. It is driven from a vertical shaft actuated from the crank shaft by means of spiral gears, the same shaft also driving the oil pump in the crank case; a timer for use in operating coils for a second ignition system is mounted at the top of the shaft and, coming very nearly level with the top of the engine, is in an easily accessible position.

Owing to the construction of modern motors, which favors the placing of magnetos longitudinally, that position generally is the rule, though in some cases they are placed cross-wise. The Pope-Hartford

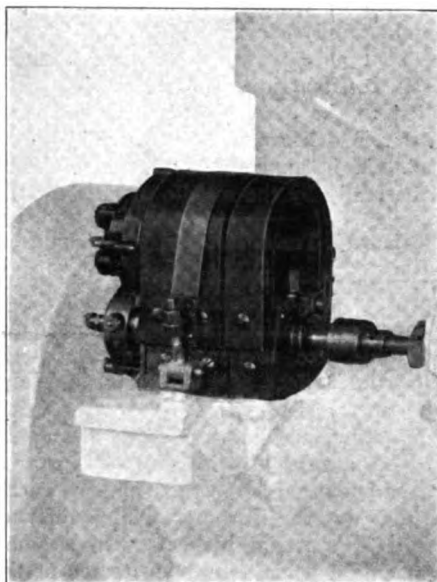


FIG. 6—STRAP METHOD OF HOLDING MAGNETO ON VELIE CARS

motor, which is illustrated in Fig. 8, belongs in this class, the magneto being placed transversely to the axis of the motor. Otherwise the method of mounting and driving is similar to orthodox practice, a metal strap serving to hold the magneto in position and the drive being obtained by means of a jack shaft from a gear on the water pump shaft.

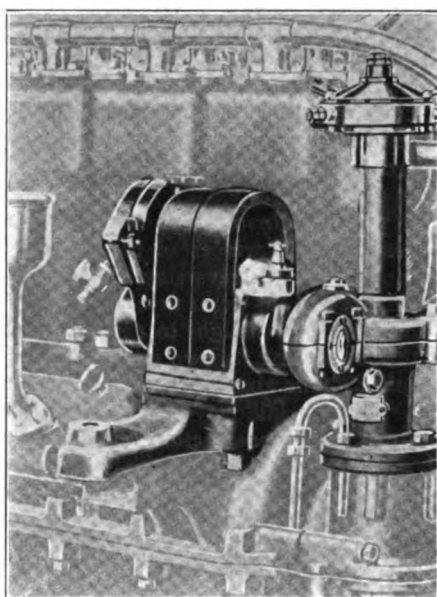


FIG. 7—UNUSUAL MAGNETO AND TIMER DRIVE ON RUTENBER MOTOR

Though the position of magnetos in general and methods of driving are pretty well established at present, just what the future will bring forth in these respects remains

more or less obscure. That some change will be made, however, and in the not far distant future, seems within reason, not because of any inefficiency of present machines or methods, but simply because of the unmistakable tendency toward reducing the necessity for manual labor, the reduction being brought about by the no means simple expedient of combining in the ignition magneto a lighting dynamo and an engine starter. Obviously the method of mounting and driving such a machine must be considerably different from current practice in the arrangement of much smaller and lighter magnetos. As several such systems already have made their appearance and have the backing of prominent manufacturers, it is reasonably certain that others will come as well, and

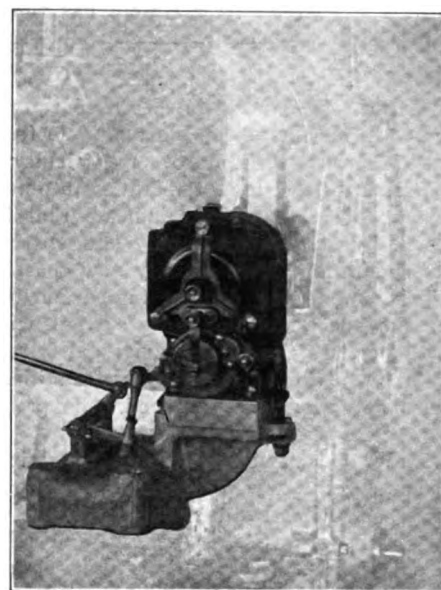


FIG. 8—TRANSVERSE MAGNETO MOUNTING ON POPE-HARTFORD "SIX"

it is not altogether improbable that present day methods will give way in time to better ones, for as fast as improvements are made they will be adopted.

De Palma to Build Made-to-Order Cars.

Ralph De Palma, the well-known racing driver, is to become an automobile manufacturer. He has no idea of rivaling any of the huge establishments which now exist, but he believes that there is a niche for a man possessed of his information and experience, and he means to turn them to advantage. In brief, he purposes building cars to order, not merely speed cars, but touring cars and roadsters which will embody not only this own idea, but the personal whims of those who pay for them. He expects to set up a modest plant in New York City for the purpose.

De Palma's success in "tuning up" the many racing cars which he has driven, and the fact that as long ago as 1905 he built two pleasure cars which are still running, tend to justify his belief in himself.

PUSH-BUTTON STARTS INTER-STATE

Three-in-One Electrical Equipment Adopted by Muncie Manufacturers—Two New Models Added to Line.

To start the engine of the forthcoming new model Inter-State cars it will be necessary only to push a button, a new combination "starting, lighting and igniting" system which has been developed for them being so constituted that its actuation is reduced to that simple operation. Furthermore, the system is so complete that the introduction of the magneto for supplying ignition current after the engine has been started will be accomplished without even throwing a switch. The system has sufficient reserve capacity to run the motor 40 minutes.

While the innovation in electrical equipment is to be one of the most notable features of the new line, its other particulars, as disclosed by the Inter-State Automobile Co., of Muncie, Ind., indicate that it is to be by no means the only one worthy of consideration. Two entirely new chassis designs, embodying distinct improvements over the successful line now current will constitute the basis of six individual types. The line will be enlarged by the addition of two new models reproduced from present practice with slight improvements.

Of the two newcomers, both of which will employ the new electrical system, one will be of 50 horsepower, equipped with a 5 x 6-inch four-cylinder engine, and will be put forth in three seven-passenger types. The other will be of 40 horsepower rating and will have a 4½ x 5½-inch block motor, like that of the larger chassis, of entirely new construction and distinguished by exceptionally fine pulling powers at low rotative speeds, it is said. This chassis, which likewise is to be built in three different styles of finished car, will have 118-inch wheel base and will be shod with 36 x 4-inch tires.

Apart from the differences in engine design and sundry other points pertaining to size and power, both of the new chassis will embody a number of differences from current Inter-State practice. These new features will include a new drop frame with sub frame mounting for the power plant, a new style multiple disk clutch with cork inserts which is to be mounted integrally with the fly wheel, instead of being embodied in the transmission unit, as heretofore. The clutch has been carefully developed and is connected through a universal joint with the change gear mechanism in such a way that all stresses save those due to driving are eliminated. The gearset is of four-speed construction and is mounted on annular ball bearings, both as to splined driving, lay and main shaft journals.

In the way of equipment, the new cars will be provided with a mechanical tire pumping device, demountable rims, wind-shields, speedometers, and the usual minor outfits in the way of tools and supplies. They will be trimmed in nickel and black enamel. Body developments, of course, have kept pace with the improvements in chassis construction, the new styles being applied to the 30-A closed-front and 32-A roadster, which are to be practically reproduced. It is expected that the new line will be ready by the middle of next month.

"Wizard" Tesla Evolves a Turbine.

Disclosures as to the details of a new form of engine on which Dr. Nikola Tesla, the famous scientist, has been engaged for some time, are reviving discussion as to the possible effect of gas turbine developments on the automobile industry. Tesla's invention, which is described as the application of a new principle in fluid propulsion, embodies action which closely parallels that of the turbine, while differing from it in material respects. In a small steam engine which has been tested at the Waterside station of the New York Edison Co., no less than 110 horsepower is claimed to have been developed from a rotor only 9¼ inches in diameter by 2 inches wide. Equally remarkable results are anticipated from gas engines working on the same plan.

Its almost childish simplicity is the most striking feature of the new Tesla engine. Essentially it consists of a group of thin circular disks mounted side by side on a shaft and enclosed in a casing of simple form. No buckets, blades or vanes, such as are used in ordinary turbines, are employed, the friction between the motive fluid and the disks being relied on to impart motion to the shaft. The adhesion of the fluid for the metal surfaces of the disks and its own viscosity are the physical properties employed in the action of the engine.

The principle involved is that the fluid delivered to the surfaces of the rotor will seek an outlet by traversing the disks in spiral paths and the great flexibility claimed for the system is thought to depend on the fact that in seeking its own course of travel the fluid is following lines of least resistance. The principle may be used for either pump or engine construction and the rotor will work equally well in either direction. Its simplicity will render its cost of construction, if brought to a practical solution, extremely low.

Secures Rights to Term "Motorette."

The C. W. Kelsey Mfg. Co., of Hartford, Conn., has been successful in securing trade mark registration of the term "Motorette" as a word descriptive of all three-wheel motor vehicles. The fact is of more than passing interest as the term was employed by several automobile manufacturers in the early days of the industry.

BIG BUS PROJECT FOR WINDY CITY

Chicago's New Transportation Company Proves to Have Far-reaching Plans—Prominent Men Interested.

A motor 'bus service rivaling that of New York City, and ultimately those of London and Paris, is the ambitious project of a group of Chicago capitalists, headed by John C. Shaffer, which is about to be put into execution in the Windy City. The initial service, for which 12 special vehicles have been ordered, is to be instituted in the shopping region of the "loop" district, from which circumstance early accounts of the venture made it appear limited to that field. According to later disclosures, however, the plan is of much broader scope and involves very much more than the mere co-operation of the department store companies in bringing customers from the railroad stations to their doors. It is further declared that despite the conspicuous part to be played in the new undertaking by controlling interests in the Parmelee Transfer Co., which has a practical monopoly of the depot transportation business in Chicago, it will in no way be affiliated with that institution.

Back of the bus undertaking is the Chicago Motor Transportation Co., a \$100,000 corporation, the capitalization of which, according to present plans, will be swelled to \$300,000 within two years. Shaffer, who is president of the Transportation company, likewise is president of the Parmelee company and owner of the Chicago Evening Post. John D. Core, secretary, is secretary and treasurer of the Parmelee company; while Carroll Shaffer is vice-president and treasurer. John C. Shaffer, Carroll Shaffer, Charles A. McCulloch, John J. Mitchell and Chauncey Keep comprise the board of directors. The interest of the large department stores in the undertaking is said to be limited to stock holdings.

By the middle of this month it is expected that the 12 machines will be in operation on the first route, which will connect the important depots with the State street stores of Marshall Field & Co., Mandel Bros., Carson, Pirie, Scott & Co., and Charles A. Stevens & Bros.

Pay-as-you-enter buses have been designed for the purpose which will provide seating accommodations for 19 passengers besides the driver, with one door on the right side for entrance and exit and a rear door for exit only. Both doors will be controlled by the driver. Electric lighting and electric ventilating fans, together with heating coils supplied by both exhaust gas and jacket water from the engines are among the features provided for the passengers' comfort. The equipment chosen is the standard 1½ ton White commercial chassis with the wheel base extended.

Body Designs and Their Relation to Windage

Taking a cue from Nature herself and imitating with grotesque exactitude the outline of the humble tad-pole, the designer of the "stream-line" body has arrived at results which are remarkable in their influence on vehicle speed. Though employed principally on racing cars at the present time, touring bodies of this type already have made their appearance, while the influence of the stream-line design is indirectly apparent in many of the newer bodies that are coming on the market. It is further apparent that designers of tour-

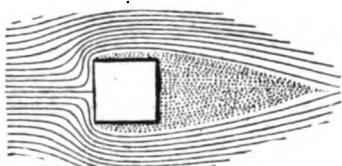


FIG. 1

ing cars are considering the principles involved with an eye to their fuller introduction in future products.

The origin of what may be termed the stream-line movement in body design is clearly indicated by W. G. Ashton, the well-known English authority, in an able discussion of the question which the Auto-car presents. "When the powers that were commenced to impose limitations upon the 'bore,' the racing car designer immediately got his own back by enlarging the dimension of 'stroke,'" as he proceeds to explain, "and when this again was in course of time restricted, he found that, in order to obtain as much or more speed, there were two available courses open to him. The first was the obvious one of pushing up the revolutions of a comparatively small engine until its output was comparable to that of an ordinary everyday motor of something like twice the size; whilst the



FIG. 2

alternative was to leave the efficiency of the engine much as it was, and, instead of attempting to increase the power, achieve the same end by reducing the resistance. This reduction of load might be to a very small extent accomplished by cutting down chassis weight, but as Brooklands has proved times without number that weight is quite the least important factor in the equation, the designer has perforce had his attention called to the necessity of con-

structing a car on such lines that the wind resistance shall become as small a factor as possible.

"For the past three years this matter has received a great deal of deliberate consideration, and the result is that speed records have been set up for small engine powers which are perfectly extraordinary, and could never have been achieved had not the wind resistance question been thoroughly studied and the practical result of experiments applied.

"In a sense this state of affairs is inclined to be regrettable, for it means that soon we shall have arrived at a stage—if, indeed, we have not already done so—in which the fact of a car setting up new records does not necessarily imply that its engine is either more efficient or more powerful than the previous best performer, but merely indicates that the design of the bodywork (perhaps in connection with a racing car it would be more correct to refer to it merely as 'superstructure') is superior.

"In another—and a larger sense—the re-



FIG. 3

grets suggested above should be by no means indulged in, for, as we well know, the results of track experience of the past have in course of time been applied to the benefit of the ordinary touring motorist, and there is no reason to suppose that he will fail to feel the influence of the results which have attended experiments in racing bodywork. Indeed, there are strong indications on every hand, but more especially in the automobile productions of France and Germany, that the manufacturer has at last realized what an enormous influence body design can have upon the behavior of his cars.

"Figs. 1 and 2, which make no pretensions to accuracy in detail, are intended to show graphically the behavior of air when moving past, first, a solid cube and, second, a body of 'stream-line form.' The definition of the last-named is that it is a body of such shape that its motion through a fluid does not give rise to surfaces of discontinuity. In other words, at no point upon the body does the fluid tend to do other than follow the contour of the body. The nearest natural equivalent to stream-line form which we have are the bodies of

fishes and birds, but it must not be forgotten that in both these cases certain differences in the shape are the result of differences in habit, and that in every natural case there is some reason for the purely stream-line form being departed from, as, for instance, the gills in the head of a fish and the attachment of the wings to the body of a bird.

"The locality of surfaces of discontinuity are marked in Fig. 1 by an extra thickness in the outline, whilst the regions of 'dead-air' (analogous to dead-water) produced by these surfaces of discontinuity are shaded

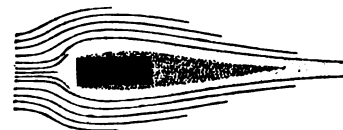


FIG. 4

ed by dots. As a matter of fact, these regions are not 'dead' at all, but are composed of a complicated system of eddy-currents, a simple case of which is indicated in Fig. 3. It is these eddy-currents, which provide a ready means of dissipating energy, that account for the great power required to drive a clumsily-shaped body through a fluid as compared with that required for a body of stream-line form.

"When bodies which are not of stream-line form are moved through a fluid, the presence of surfaces of discontinuity causes them to be surrounded with a system of flow that has the same effect eventually as though the body itself were of easy lines, but, as indicated in Fig. 4 (in which the system of flow is shaded), the result is that motion is imparted to a very much larger volume of fluid than if the body were well shaped. Thus the nearer a body is to stream-line form the smaller will be the surrounding volume of fluid affected,



FIG. 5

whether air or water, and hence the smaller will be the power required to propel it at a given speed.

"In Figs. 5, 6 and 7 are given diagrams showing the flow around a body of stream-line form which has been mutilated, first by having a small portion of its head cut off, second by being completely decapitated, and thirdly by having its tail docked. It will be seen that, in the first instance,

only a slight surface of discontinuity is produced, but it must be borne in mind that if the speed of motion were considerably increased the surfaces of discontinuity would become more accentuated. It will also be realized that, when a certain degree of mutilation has been reached, the stream-line form of the rest of the body has little or no effect. Thus, if a racing body is to



FIG. 6

be made 'stream-line,' it is obviously useless to pay particular attention to the sharpness of the tail if the 'entrance' and shoulders be not correctly proportioned; similarly the best designed head will be neutralized by that of an ill-conceived tail. In certain circumstances it may be even better to discard all stream-line ideas if they cannot be applied throughout, and an instance of this is provided by an ordinary railway train.

"It was thought by many locomotive engineers that a wind-cutting device in front of the boiler and a sloping front to the

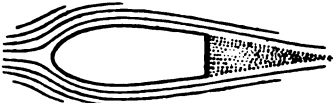


FIG. 7

cab would allow a train to realize more speed, yet with the ordinary design of rolling stock it was found that the very reverse was the case, for the easy 'entrance' of the 'stream-line' locomotives allowed the wind to blow directly against all the window—and door—recesses of the following carriages, with the result that a higher resistance was set up than before, when the surfaces of discontinuity raised by the locomotive were so pronounced and so wide in

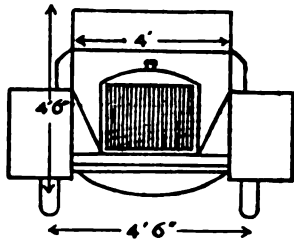


FIG. 8

effect that the rest of the train was given a stream-line eddy-system which was drawn along with it. This phenomenon may be observed by watching from a bridge how the exhaust steam behaves when a slight side wind is blowing across the path in which the train may be moving. "During autumn, when days are calm and leaves litter the ground in some quantity, the way in which air is carried along by a

car is very noticeable. Light objects 15 or 20 feet away from and at the side of the car are affected by its passage, and this gives a good idea of the very large volume of air which is uselessly set in motion.

"We will now consider some concrete cases of touring and racing cars, and examine their wind resistance effects. It is necessary, however, to point out in this connection, that, owing to the various shapes and angles of different parts of a car, it is impossible more than roughly to approximate the end-on resistance area of a car in calculating the horsepower absorbed, whilst other resistances, such as those occasioned by a slight side wind and that of the rear seat and folded cape cart hood, will have

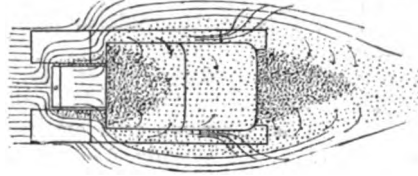


FIG. 9

to be left out altogether. In any case the effects of both of these factors will be so small as to be safely negligible in an empirical consideration of the present type.

"In Fig. 8, is given a rough end-on view of a typical car with dimensions to indicate the approximate sizes.

"In summing up to ascertain the total area of resistance one or two points require consideration. First of all, with regard to the radiator, this can scarcely be reckoned as dead resistance, owing to the large volume of air which passes through it, but, on the other hand, by no means all the air that strikes it passes through. We still have, therefore, to examine into what happens when the air has passed through the radiator. Some of it flows easily around

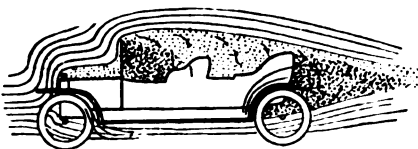


FIG. 10

the engine and out under the floorboards, but the greater part, no doubt, has to be first deflected by the vertical dash board, and hence the reaction is not very different from what it would be if the radiator were not porous at all. However, to be on the safe side, the resistance of the radiator will be written down 50 per cent. from what it would be if solid.

"With regard to the curved mud-guards, the resistance area of these will be taken as being equal to their projected area, i. e., the area shown in Fig. 8. The mean angle of their inclination, viz., of the portion in the rear of the horizontal extension—is about 45 per cent., and the total pressure on their surface may therefore be taken as sensibly the same as if they were not

inclined at all. (This is according to the Eiffel Tower air-pressure formula.) Again, in view of the distance between the front and rear mud-guards, and also of their proximity to the side of the body, the 'shielding' effect exercised by the front pair will be practically negligible, and the rear pair, therefore, will have to be taken into

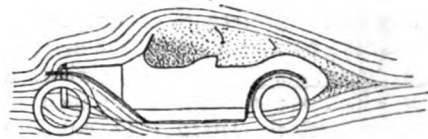


FIG. 11

the calculation in addition to the front ones.

"The resistance of the wind screen will be practically the same whether it be vertical or inclined, as it is only in rare cases that one finds a screen set at an angle smaller than 45 degrees.

"The approximate end-on resistance area will be, then, equal to that of a normal plane area of 23 square feet, made up as follows:

Sq. ft.
Area of dash, screen and undershield.. 18

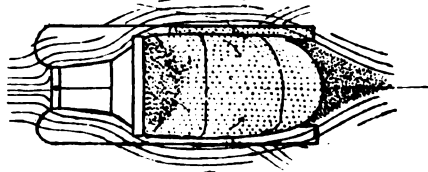


FIG. 12

Area of four mudguards.....	5
Area of side and head lamps.....	1
	—
Less reduction for radiator, say.....	1
	—
Total	23

"It will be noticed that the area of resistance of the wheels has not been taken into consideration; this, however, is not likely to prove of any moment except at very high speeds indeed.

"Let us now inquire into the amount of power which is common in overcoming this resistance, calculated on a speed basis of 30 miles per hour. As will be seen from the calculations, the power varies as the cube of the speed, and hence, if the speed

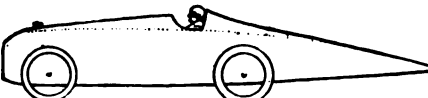


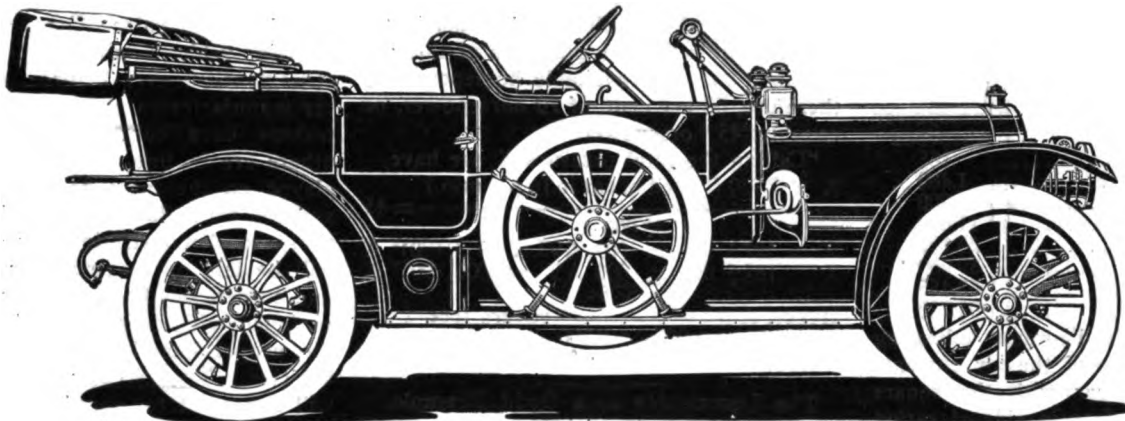
FIG. 13

be doubled, making it 60 miles per hour, the power absorbed will be multiplied by eight.

"According to the Eiffel Tower formula, which is the one generally used, the pressure on a normal plane is equal to .003AV², where A is the area in square feet, V the velocity in miles per hour, and the pressure represented in pounds. Substituting, we have:

Rambler

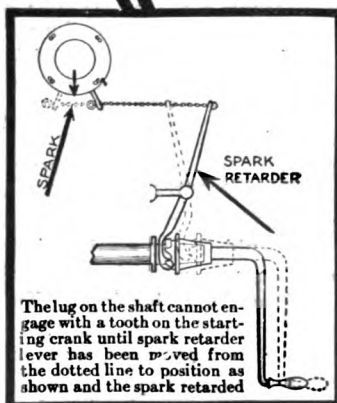
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Sixty-four

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The lug on the shaft cannot engage with a tooth on the starting crank until spark retarder lever has been moved from the dotted line to position as shown and the spark retarded

The Thomas B. Jeffery Company

Main Office and Factory, Kenosha, Wisconsin
Branches: Chicago, Boston, New York,
Milwaukee, Cleveland, San Francisco

$$\text{Pressure} = .003 \times 23 \times 900 \\ = 52.1 \text{ lbs.}$$

"From this we obtain the horsepower absorbed by multiplying this figure by the speed in feet per minute and dividing by 33,000.

$$\frac{62.1 \times 2,640}{33,000} = 4.96 \text{ H. P.}$$

"In order to avoid fractions we will suppose that we have under-estimated the resistance area (which is practically certain), and therefore call the figure five horsepower.

"The following table, then, indicates the power absorbed at various speeds:

Miles Per Hr.	Horsepower Absorbed
10 .....	.185
20	1.480
30	5.000
40	11.840
50	23.125
60	39.960
70	63.455
80	94.720

"Figs. 9 and 10 are diagrams indicating the probable direction of the air currents around an ordinary car with the square type of dash board, first in side elevation and next in plan. These are to be compared with Figs. 11 and 12, which represent the same phenomenon, only in this case the car has a better designed body with taper bonnet and tail extension. In this case, however, the screen is tilted. The diagrams speak for themselves except that it should be noted that in Fig. 10 the eddy currents produced by the wind screen and dash board would be largely augmented if no side doors were fitted to the front seats. Thus it will be understood that the mere addition of such doors to a body not already so fitted may of itself realize a sensible addition to speed.

"Upon glancing at the table of horsepower absorbed, anyone may say that since his car is only capable of 40 miles per hour, its behavior is not very seriously affected by wind resistance, but it need hardly be said that the weather is not always a flat calm, and that if the resistance area be, as in the example, 23 square feet, and he be doing 20 miles per hour against a 30 miles per hour head wind, he will need 23.12 horsepower, instead of 1.48 horsepower. In other words, the speeds in this table are not land speeds, but air speeds, i. e., the speeds relative to the wind.

"Referring to stream-line form racing bodies, many of these, though quite good, could be improved, as indicated in Fig. 13. The dotted lines show the body as it is and the unbroken lines of the body as it should be. By fitting the driver's head and shoulders with a following 'tail,' the eddy currents produced by his person are considerably reduced.

"In order to gain an idea of how much resistance some of these stream-line bodies actually have it is necessary to work back from a concrete example. Such a one (which shall be nameless) is a 15.9 car, the

brake horsepower tests of which have shown it capable of exactly 70 horsepower, and the track tests of which demonstrate a speed of almost exactly 90 miles per hour. From the horsepower available for overcoming wind resistance will have to be deducted a certain amount absorbed in the friction of transmission and in the loss between the tires and the track. The transmission efficiency is probably about 75 per cent., and if another ten per cent. be added to this loss of 25 per cent., making 35 per cent. in all, the result will be sufficiently near the truth for the purposes of this approximation. The available horsepower is, therefore, 65 per cent. of 70 horsepower, or roughly, 45 horsepower.

"Calling the total pressure X, we have,
 $X \times 7,920 \text{ (Speed of car in ft. per min.)} = 45$

$$\begin{aligned} X &= 187.5 \text{ lbs.} = .003 AV^2 \\ X &= 187.5 \text{ lbs.} = .003 AV^2 = .003 (90)^2 A \\ &187.5 \end{aligned}$$

$$\begin{aligned} \text{Hence, } A &= \frac{33,000}{.003 \times 8,100} \text{ square feet} \\ A &= 7.7 \text{ square feet.} \end{aligned}$$

The Locomotive as a Good Example.

If motor truck operators would expend a greater amount of energy in the details of daily maintenance of their equipments and less in spasmodic periods of overhauling, it is the opinion of many authorities that their total expenses for upkeep would be proportionately less. In support of this view, a well-known motor truck engineer cites the manner in which locomotive maintenance is divided, showing how 60 per cent. of the total is applied to the routine operations of wiping, cleaning, washing and inspecting. Very suggestively, he says:

"Your truck is a road locomotive. We submit a few facts regarding steam locomotives that run on rails, under conditions much less strenuous than those of motor trucking. An express passenger locomotive is inspected at the end of every 80 miles and a freight locomotive at the end of every 150 to 200 miles. As many as five inspectors work on a locomotive at one time. Each is responsible for certain groups of parts.

"To show the relative cost of different kinds of maintenance service and the importance placed on cleaning and inspecting every part inside and out, the following distribution of labor on passenger engines is cited for consideration, the period covered averaging eight months: Wiping, cleaning, washing, inspecting, 60 per cent.; clinkering, firing up, 12 per cent.; watching, hostling and calling, 12 per cent.; supplying, coaling, sanding, 10 per cent.; turntable and laborers, 6 per cent.

"How would these compare with similar items of care for an auto truck? Under these conditions passenger locomotives run 127,000 miles without going to shop for overhauling; freight locomotives 100,000 miles.

"On four out of five of the trunk lines

running west out of New York the locomotive repairs per mile are 4.4 cents, 7 cents, 12 cents and 16.6 cents. The first road has the heaviest grades of the four. The last road runs 30,000,000 locomotive miles. Its repairs cost 12 cents per mile more than the first road, and it is losing \$3,600,000 a year. Why?"

Electrics to be Featured at Palace.

At the New York Electrical Exposition, which this year will be held in the new Grand Central Palace, October 11th to 21st, electric vehicles will be featured more strongly than ever before. Already eight car manufacturers and two storage battery makers have contracted for space, and others are in line. The cars will be displayed on the main floor of the building and the third floor will be given over entirely to demonstration purposes. On it will be laid out a circular course, and in one corner will be set up a model garage equipped with every up-to-date device for the proper handling and care of electric vehicles. The circular track, of course, will not be fit for speed contests, but it is asserted that it will permit of tests of everything from the smallest runabout to the largest truck. The cars for which space already has been contracted are the Anderson, Baker, General Vehicle, Lansden, Rauch & Lang, Studebaker and Waverley. The Electric Storage Battery Co. and the Edison Storage Battery Co. are also included in the list of exhibitors.

Adjusting the Wicks of Tail Lamps.

Though a tail lamp may be blamed for its tendency to go out periodically, not infrequently the trouble may be traced to the carelessness of the person who lights it in turning the wick up too high. While the assumption that a large flame is harder to extinguish than a smaller one is correct in most cases, it is wrong in this one for the reason that the size of the flame governs the amount of foul gases which are given off. As the vent holes are only designed to liberate the gas which is formed when the wick is turned up to the proper height, the rest remains and simply suffocates the flame. Obviously the remedy consists in keeping the wick turned down as low as possible consistent with the amount of light which the law and necessity requires.

Carburettors That Cause Knocks.

When installing a new carburetter, it should be remembered that a knock, not apparent with the old carburetter in place, frequently develops. This generally may be traced to the fact that the new carburetter delivers more gas, or gas of a better quality, and as the explosions consequently are heavier, the knock is accentuated or developed as the case may be. Usually the cause of the knock is a deposit of carbon on top of the pistons.



994,546. Vehicle Shock Absorber. Harvey Terhorst, Milwaukee, Wis. Filed Feb. 2, 1910. Serial No. 541,947.

1. The combination of a shaft, a drum rotatably mounted thereon and having an internal cylindrical chamber, a radial abutment mounted on said drum within said chamber, a radial piston mounted on said shaft within said chamber, an inner cover-plate covering one side of said cylindrical chamber, an outer cover-plate secured over said inner cover-plate leaving between them a secondary chamber, there being a passageway from said secondary chamber to the low pressure said of the piston and a spring within said secondary chamber.

994,971. Advertising Device for Stamping Streets or Pavements. Orrien Smith Beck, Sacramento, Cal. Filed Oct. 26, 1910. Serial No. 589,188.

1. A device of the character described comprising a vehicle mounted on wheels, projecting arms on said vehicle, sprocket wheels mounted on said arms, a chain movable over said sprocket wheels, a type rack on each link of said chain, such rack comprising a spring ring split at one point to form a slot and self inking type carried by said rings.

994,974. Removable Rim. Eli J. Bushey, New York, N. Y. Filed Aug. 20, 1910. Serial No. 578,240.

1. In a wheel, the combination of a felly, a rim on the felly and provided with a flange at one side extending around the rim, the rim at the opposite side of the wheel having a flange located on one circumferential portion of the rim only, the rim at the opposite circumferential portion being provided with a lug at each of two

portions removed a short distance from the extremity of said short flange, a clencher rim surrounding the first-mentioned rim and held in place on one side by the said flange on the inner rim, and a locking member having at its extremities hook portions adapted to be inserted on said lugs by a movement radial of the wheel previous to positioning of the outer rim, the locking member being provided with wedge portions that serve to offset the clencher rim from the other rim between the said lug portions, and means for securing the locking member to one of the wheel members.

995,005. Valve. Henry K. Holsman, Plano, Ill., assignor to The Independent Harvester Company, Plano, Ill., a Corporation of Illinois. Original application filed Jan. 2, 1909, Serial No. 470,376. Divided and this application filed Dec. 19, 1910. Serial No. 598,047.

1. In a device of the class described, the combination with a valve casing having a valve-seat surface, a stem-guiding sleeve with a longitudinal slot therein, and an aperture between the surface and the sleeve adjacent the slot; of a valve member comprising a head and retaining flange at opposite ends of a stem, said stem being flattened to pass through said longitudinal slot, and means to prevent the stem turning after the parts are assembled.

995,009. Auto Drive Mechanism. Ben W. Janssen, Wentworth, S. D. Filed Aug. 17, 1909. Serial No. 513,277.

1. A power transmission including a front axle having eyes formed at its opposite ends, a horizontal shaft carried by the axle, vertical shafts engaging through the eyes, intermeshing pinions disposed upon the horizontal and vertical shafts, spaced collars positioned against the sides of the eyes and about the vertical shafts, depending arms carried by the lower ones of said collars and extending outwardly from the same, spaced bearings arranged in horizontal alinement upon the arms, spindles journaled through the bearings, intermeshing pinions carried upon the lower ends of the

vertical shafts and on the spindles for communicating motion thereto, wheels carried by the spindles, and clutches interposed between the spindles and the wheels.

995,010. Vehicle Wheel. Thomas B. Jeffery, Kenosha, Wis.; Kate E. Jeffery, Charles T. Jeffery, and Harold W. Jeffery, executors of said Thomas B. Jeffery, deceased. Filed Aug. 6, 1906. Serial No. 329,329.

1. In a vehicle wheel, a wheel body including spokes, a plurality of plates alining with said spokes and pivotally mounted on axes parallel to the axis of the wheel body, and a rim surrounding said wheel body in engagement with said plates.

995,037. Automobile. Isaac Smyth, Chicago, Ill. Filed Dec. 13, 1909. Serial No. 532,930.

1. In an automobile, a chassis and a body provided with a door way, a drum rotatably mounted on said chassis, a pulley suspended in said body adjacent to the top and at one side of the door way, a cord wound about said drum and passing over said pulley, a weight on the free end of said cord, a transverse shaft and said drum, a governor shaft, gearing connecting said governor shaft with said first mentioned shaft, co-acting beveled friction disks on said governor shaft and said drum, a governor on said governor shaft for actuating the said disk on said shaft, a drive shaft, gearing connecting said governor shaft and said drive shaft, traction wheels and gearing connecting said drive shaft and said traction wheels, substantially as described.

995,043. Clutch. William H. Swartz, York, Pa. Filed Apr. 5, 1910. Serial No. 553,630.

1. In a clutch, the combination, with stationary and longitudinally movable friction clutch members, of a positive locking device for preventing said friction clutch members from slipping, and means to automatically and unyieldingly secure said positive locking device in operative position when the friction clutch members are in driving connection.

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Unit power plant, enclosed valves; Bosch ignition; Timken axle equipment; 36 x 4-in. wheels; demountable rims; 122-in. wheelbase; nickel trimmings.

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995,074. Priming Attachment for Carburettors. Thomas J. McCarthy, Detroit, Mich., assignor to Star Carburetor Co., Detroit, Mich., a Corporation of Delaware. Filed May 21, 1910. Serial No. 562,580.

1. In an internal combustion engine, the combination of a cylinder formed with an intake pipe, a carburettor in communication with the intake pipe, the said carburettor being formed with a float chamber, a fuel supply chamber provided with a fitting having an auxiliary chamber therein which communicates with the fuel supply chamber, a liquid fuel reservoir in communication with the fuel supply chamber and arranged to supply fuel thereto under pressure, a valve automatically controlling communication between the fuel supply chamber and the float chamber of the carburettor, a pipe leading from the auxiliary chamber to the intake pipe of the cylinder, and a second valve controlling communication between the fuel supply chamber and the auxiliary chamber, the said second valve being normally closed and being adapted to be opened when starting the engine to provide a continuous supply of fuel direct from the reservoir to the intake of the cylinder independent of the float chamber of the carburettor.

995,119. Tire Protector. James F. Collins, Wilmerding, Pa. Filed Nov. 30, 1910. Serial No. 594,856.

1. The combination with a wheel rim having an intumed upper edge formed with a notch, of a tire mounted on the rim, a tire protector comprising a plurality of circumferentially disposed spaced members, anti-skidding projections on said members, and means for securing the spaced members to the wheel rim comprising a band

having an opening therein to receive an anti-skidding projection and a tongue formed on one end thereof, said tongue entered in the notch of the intumed edge and engaging the edge adjacent to the notch.

995,137. Chain Links. Henry E. Mayward, Philadelphia, Pa., assignor to Link-Belt Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 18, 1909. Serial No. 533,814.

1. The combination in a chain of a plurality of sets of links, alternate sets of said links including one or more plane links and two flanged links respectively mounted on the outer sides of said plane link or links, with means for connecting the various links.

995,152. Transmission Device. John W. Ketterman, Muncie, Ind. Filed Sept. 15, 1910. Serial No. 582,172.

1. In a transmission device, the combination of a driving shaft, opposed disks secured thereon, a shaft block carried on the driving shaft and between the disks, said shaft block being composed of two parts united but free to be moved slidingly on each other, a pair of driven shafts having their inner ends journaled in the two parts of the shaft block, a shift bar having its one end connected loosely to one of the shaft block parts, a fulcrum bar connected between the shift bar and the other part of the shaft block.

995,155. Automobile. Emil Koeb, Leipzig, and Ralph P. Thompson, Springfield, Ohio. Filed June 21, 1909. Serial No. 503,349.

1. In an automobile, the combination, with a main frame, a supplemental frame pivotally connected at one end to said main frame so that its other end may move vertically, and ground wheels connected with said supplemental frame near the free end thereof, of springs interposed between said main frame and said supplemental frame, connected to said main frame, pivotally connected to said supplemental frame at a point between the axial line of the ground wheels and the point of support of said supplemental frame upon said main frame and adapted to receive the vertical movement of the ground wheels in a lesser degree, and means for interconnecting said springs to cause them to move in unison.

995,372. Tire Chain. Alois B. Saliger, New York, N. Y. Filed Oct. 30, 1907. Serial No. 399,822.

A device of the class described comprising a plurality of links each of which consists of a bottom plate, a hook at one end, the bent over portion of said hook being parallel to said bottom plate; a lug, directed obliquely upward and provided with a hole at the other end; flanges on the side and upwardly directed; and links provided with a hook in place of the lug, and an attaching hook at each end of said device substantially as shown and described.

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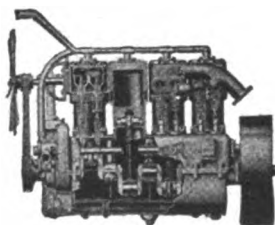
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THE MOTOR WORLD

Vol. XXVIII.

New York, U. S. A., Thursday, September 21, 1911.

No. 13

CLAIMS PRIORITY IN NAME "HUPP"

Hupp Motor Car Co. Sues to Restrain Its Use by R. C. Hupp and Hupp Corporation—Confusion Alleged.

As the result of the launching of the "R. C. H." gasoline touring car by the Hupp Corporation, of Detroit, on Tuesday last, 19th inst., the Hupp Motor Car Co., of that city, applied to the Wayne County (Mich.) Circuit Court for a permanent injunction restraining R. C. Hupp and his associates from making use of the name "Hupp" in connection with the manufacture or sale of gasoline automobiles, or in any other manner that would injure the business of the Hupp Motor Car Co.; and especially in connection with the manufacture of the small car styled the "R. C. H.," which the Hupp Corporation has placed on the market, and which it is feared may be confused with the Hupmobile.

The bill of complaint alleges that R. C. Hupp and his brother, together with the Hupp Corporation, have violated the rights of the Hupp Motor Car Co. by the use of the name "Hupp" in the automobile business, inasmuch as the Hupp Motor Car Co. used that name at the request of Hupp when the company was incorporated, and has made the name well known to the trade and to the public in general; that the use of the name "Hupp" by Hupp in the new company, the Hupp Corporation, has been, and will be, a source of confusion and embarrassment to the Hupp Motor Car Co. and its dealers, to manufacturers and the general public with whom it does business; and that such use of the name "Hupp" as already made on the part of Hupp and his associates in the company called the Hupp Corporation is an attempt to trade illegally upon and benefit by the reputation of the Hupp Motor Car Co.

Among other things the bill of complaint states that the connection of R. C. Hupp with the Hupp Motor Car Co. was

terminated by the board of directors of that company, largely on account of Hupp's undue activities in promoting his personal interests in the Hupp Corporation through the influence and prestige created by the Hupp Motor Car Co. in connection with the name "Hupp," which the latter company claims the exclusive right to use.

Until five or six weeks ago, Hupp was vice-president and general manager of the Hupp Motor Car Co., at which time he retired. During his incumbency he had formed five separate companies, an electric car company, a machine company, a foundry company, a force company and a sales company, all of which were merged in May last under the style the Hupp Corporation. They are the "personal interests" to which the complaint refers.

Petrel and Beaver Become F. S. Motors.

Always closely related, the Petrel Motor Car Co. and the Beaver Motor Co., both of Milwaukee, have been consolidated under the style the F. S. Motors Co. Both were properties of the Filer-Stowel Co., which builds Corliss steam engines, and from which the merger takes its name. Its offices are the same as those of the parent company, viz.: Walter Reed, president; T. J. Neacy, secretary and treasurer. Ralph C. Lewis, formerly president of the Rider-Lewis Motor Car Co., of Anderson, Ind., has, however, just entered the F. S. Motors Co. as general manager. Heretofore the Petrel and Beaver companies have operated separate plants, the one producing cars, the other gas engines, but they are now housed in one big factory building, which recently was completed in West Allis, a suburb of Milwaukee. Petrel cars will continue to be marketed through Petrel agents, and Beaver motors will be sold to the trade in general.

Franklin Designer to Visit Europe.

W. H. Emond, designer for the Franklin Automobile Co., has booked passage for Europe and will sail on October 1st with an eye open for all that's worth while. He will visit London, Paris and Berlin.

CANADIANS' CONCERN GROUNDLESS

Licenses Prohibit Sale of American-Made Knights in Dominion and Other Countries—Inventor to Lecture Here.

When the Russell Motor Car Co., of Toronto, permitted it to become known that when an American-made car equipped with a Knight engine appeared at the border it probably would be stopped by an injunction, the officials of the Canadian company either were possessed of needless concern or adopted that means of calling attention to and emphasizing the rights granted to them by the Knight license which they acquired some two years ago. At any rate, F. E. Lonas, attorney for the Knight & Kilbourne Patents Co., which issues all such licenses, is authority for the statement that all United States licensees well understand that they have no more right to ship either Knight engines or cars equipped with them into Canada than the Russell company has the right to ship its productions into the United States; and Lonas does not believe they have any intention of doing so.

That the Knight licenses are designed to conserve home markets of the respective licensees and that in doing so they necessarily restrict the foreign markets in which the licensees' cars may be sold is also made clear by Mr. Lonas; it develops that under no circumstances are they privileged to sell their productions in other countries in which the Knight invention has been patented.

"The Russell Motor Car Co. has a license from Knight & Kilbourne Patents Co., the owner of the Knight patents for all countries, which permits it to build and market motor cars with Knight engines in the Dominion of Canada, and all countries in which there are no patents," says Mr. Lonas in his statement to the Motor World. "This license is granted directly by Knight & Kilbourne Patents Co., and not by the Daimler Motor Co., of England, which lat-

ter company has no right to grant licenses to any one, and is itself merely our English licensee.

"All of our American licensees have licenses to build cars equipped with Knight motors, and market them in the United States, but they have no right to ship either Knight motors or cars equipped with same into the Dominion of Canada, or any other country in which we have patents, under any circumstances whatever. This is perfectly well understood by our American licensees, and I feel certain no attempt will be made by any of them to market either cars or motors in the Dominion of Canada. The Russell Motor Car Co. has no right to import either cars or motors manufactured by it under the Knight patents, into the United States."

Mr. Lonas also declares that Charles Y. Knight, the inventor, has no relatives in New England and that therefore there can be no truth in the story that one of them located in that part of the country had more or less to do with the invention of the slide-valve engine. Knight himself now is en route on one of his periodical visits to this, his native country. He sailed from England on the 16th inst. While here he will address engineers' meetings in New York, Detroit and Chicago on the subject of his invention. He was preceded by W. Owen Thomas, who, it transpires, has become consulting engineer for the American licensees and who has spent some six months in familiarizing himself with the processes in vogue in the four foreign factories which make use of the Knight engine. Thomas himself is an inventor of some note and about two years ago, when located in Wisconsin, developed a car mounting a rotary valve engine and an integral frame and body.

McLaughlin Branches Get Pierce-Arrows.

Most of the branch houses or subsidiary companies of the McLaughlin Carriage Co., of Oshawa, Can., now are handling the Pierce-Arrow car on the other side of the border. Although the parent company finances the subsidiaries the agency contracts are placed directly with the latter, of which there are several, one in Winnipeg and another in Calgary, among the number. The subsidiaries sell the Pierce-Arrow direct as they are not permitted to appoint sub-agents. The fact that the owners of the McLaughlin Carriage Co. are also the owners of the McLaughlin Motor Car Co., which reproduces the Buick car in the Dominion, adds some interest to the situation.

Marquette Forms a Selling Company.

To market the product of the Marquette Motor Co., of Saginaw, Mich., which recently absorbed the Welch-Detroit Co., there has been organized and incorporated a selling company, the Marquette Co., which, like the others, will be a subsidiary of the General Motors Co., whose presi-

dent, treasurer and secretary occupy the same relative positions in the Marquette Co. They are as follows: Thomas Neal, president; O. C. Hutchinson, vice-president and manager; James T. Shaw, treasurer; Standish Backus, secretary; T. S. Merrill, assistant secretary-treasurer. At the time of the merging of the Marquette Motor Co.—which made the Rainier car—and the Welch-Detroit Co., it was stated that both of those cars would be styled Marquettes, but apparently that idea has been abandoned, as it now is given out that both the Rainier and Welch-Detroit will retain their identities and that in addition there will be a new model termed the Marquette. It will comprise two chassis, one having a 122-inch wheel base and mounting a 40-45 horsepower engine and listing at \$3,000; the other with a wheel base of 119 inches, an engine of 45-50 horsepower and selling for \$4,000. The offices of the Marquette Co. will be in Detroit and its management in the hands of O. C. Hutchinson, who filled the same role in the manufacturing company.

Briggs to Head New Detroit Company.

Claude S. Briggs, who organized the Krit Motor Car Co. and was its first president and who, after disposing of his holdings, became general manager of the Brush Runabout Co., has resigned that office to assume the presidency and general management of a new \$200,000 company which will make a popular-priced car styled the "Detroit." The name of the company has not been definitely decided nor the identity of Briggs's associates disclosed, but it is stated that they are men prominent in Detroit business and financial circles. The "Detroit" will be made in two models—a five passenger touring car at \$700 and a two passenger roadster at \$650, both of which will employ a long stroke motor of 25 horsepower.

General Motors Absorbs All of Bedford.

Bedford Motors, Ltd., of London, of which the General Motors Co., of Detroit, was part owner, has passed completely into the hands of the big American company, the transaction having been consummated by the latter's president, Thomas Neal, during a visit from which he returned last week. Bedford Motors, Ltd., will be used largely for the purpose of placing the Buick car on the foreign market. The Buick chassis will be exported directly from the Flint plant and completed in the London factory of the Bedford company, which is an extensive plant covering four acres of ground, and which also maintains a large salesroom on Longacre Square.

Victor's Failure Follows President's Arrest.

Following the arrest of its president, Frank J. Dorlan, who was jailed on a charge of embezzling the funds of the Hotel Manhattan, where he was employed as a clerk, the Victor Auto Supply Mfg. Co., 42

West 43rd street, New York, has been petitioned into bankruptcy and is in the hands of William Henkel, Jr., as receiver. Among other things, the petition alleged that the company had made preferential payments, transferred accounts and merchandise and removed a large part of its property; its assets are estimated to be \$2,500. The company was incorporated August 20, 1909, with \$25,000 capital stock, and acquired the plant of the Nonpareil Brass Co., of Providence, R. I., which, however, was operated for only a few months. Dorlan was president, manager and principal stockholder. How he contrived to be all of these things on a hotel clerk's salary was made clear at the time of his arrest. Most of the large sum which he is charged with embezzling is supposed to have been lost in the Victor company.

Aesthetic Sales Company "Goes Broke."

After an existence of 15 months, the Carhartt Automobile Sales Co., 1915 Broadway, New York, made an assignment on Monday last, 18th inst., to Louis H. Moos and later during the same day, creditors filed a petition in bankruptcy citing the assignment as an act of bankruptcy. The company, of which John V. Schenck is president, and which was capitalized at \$50,000, sold what was styled the "beautiful Carhartt" car and tried to do business on an aesthetic scale. It first established a salesroom in the beautiful Plaza Hotel and catered to "society" and later when it moved to the Broadway address, the store was painted in delicate tints to harmonize with the complexion of the "beautiful car." The liabilities of the company, nevertheless, are about \$70,000 and the assets but \$25,000.

Truck Company Organized in Virginia.

The P. F. Board Motor Truck Co., which has a factory in course of erection in Alexandria, Va., has been incorporated under the laws of that state with capital stock of \$100,000, of which \$25,000 has been paid in. The officers of the company are B. F. Board, president; T. C. Smith, vice-president; W. E. Bain, treasurer; George S. Hinkins, secretary; E. K. Callahan, assistant secretary. It is the intention to build trucks of 1,000 pounds and one, two and three ton capacity.

Russell Secures Remy's Australian Agency.

The Russell Motor Car Co., of Melbourne, has been appointed general agent for Australia for the Remy magneto and other electrical devices. The Melbourne house is a branch of the Canadian company of the same name.

Covert Opens Office in Detroit.

The Covert Motor Vehicle Co., of Lockport, N. Y., has established a sales office in the Ford building in Detroit. There will be displayed there, of course, a full line of Covert transmissions, jackshafts and rear axles.

WEED TACKLES TAXICAB COMPANIES

They Made Their Own Tire Chains and Parsons Licensee Hales Eleven to Court—Willis Enjoined.

Having rounded up most of the manufacturers of infringing devices, and enjoined also a large number of jobbers and dealers who by selling such devices rendered themselves guilty of infringing the now famous Parsons patent, the Weed Chain Tire Grip Co. last week turned its attention to the New York taxicab companies, and in the United States Circuit Court for the Southern District of New York obtained either preliminary injunctions or restraining orders against no less than eleven of them.

The taxicab companies naturally are the largest users of anti-skid devices, and it transpires that most, if not all, of them made their own tire chains; that is, they purchased the parts and assembled them, thereby effecting a considerable saving. Pending final settlement of the issues, the action of the Weed company, of course, will serve to prevent them from using such chains.

The companies affected are as follows: Universal Taximeter Cab Co., United States Motor Cab Co., Riverside Garage Co., Renault Taxi Service, Mutual Taximeter Co., Connecticut Cab Co., Broadway Taxicab Co., Western Express Co., Kayton Taxicab Co., Mason-Seaman Transportation Co., and the Imperial Taximeter Co.

On the 19th inst., the Weed company's suit against the Ernest J. Willis Co., of New York, for infringing the Parsons patent by reason of having sold the Whittaker tire chain, went to final hearing in the United States Circuit Court in New York, and resulted in the granting of a final injunction restraining Willis from having to do with infringing devices of any sort.

Durant Dickering for Big Factory Site.

W. C. Durant, once the leading spirit of the General Motors Co., in which at last accounts he still was a director, is reported to have purchased a plot of 40 acres on North Woodward avenue, Detroit, directly opposite the plant of the Ford Motor Co. Other reports say that he is merely negotiating for the land, which is owned by Henry Ford and a number of his associates. Durant is credited with acting in the interests of the recently formed Chevrolet Motor Co., of which he is supposed to be the chief backer and which now is occupying temporary quarters in Detroit.

General Motors Alters Fiscal Year.

In order to permit the manufacturing departments to take inventory at the most convenient time, the fiscal year of the General Motors Co. has been changed and will hereafter run from August 1 until July

31. The forthcoming statement of earnings therefore, will be for the ten months from October 1, 1910, to July 31, 1911. The report will be ready as soon as the detailed inventories now in progress are completed. Preliminary figures indicate that the results of the ten months' operation will be quite satisfactory, according to a statement issued by the company.

Another Electric Brougham from Detroit.

The first production of the Colonial Electric Car Co., which has located in a temporary plant at 66-70 Brainard street, Detroit, will be a shaft driven five passenger brougham of Colonial design which it is said will incorporate several features that are entirely new. Among the Detroiters interested in the company are A. D. Stansell, Albert Webb, Jr., F. C. Willis, Dr. L. C. Moore, Mark W. Allen and W. E. Storms, the latter being the mechanical expert.

Knox Sues Father of Former Agent.

The Knox Automobile Co., of Springfield, Mass., has filed suit against William Crane, of Milwaukee, Wis., to recover \$10,000, the amount of a bond executed by the defendant to cover a contract for the Knox agency entered into by his son, George A. Crane. The complaint alleges that the Knox company delivered a number of cars for which it failed to receive payment and that as Crane went into liquidation it has not been possible to make collections.

Fisk Gets Judgment Against Coates.

Judgment for \$855.25 in favor of the Fisk Rubber Co. and against the Coates-Goshen Mfg. Co., was entered in the New York Supreme Court on the 13th inst., the amount representing the value of tires supplied in 1910, which had not been paid for, plus interest. Joseph C. Coates, president of the defendant company, had been subpoenaed but failed to appear and Judge Clark, therefore, ordered judgment entered by default.

Gramm Increases Capital to \$1,250,000.

At the annual meeting last week of stockholders of the Gramm Motor Car Co., Lima, Ohio, an increase in capital stock from \$500,000 to \$1,250,000 was authorized, all of which will be used for equipment. The following officers and directors were elected: President, A. L. White; vice-president and general manager, B. A. Gramm; treasurer, W. T. Agerter; secretary, F. E. Lamb.

Stephenson Company Changes Title.

The Stephenson Motor Car Co., of South Milwaukee, Wis., has been dissolved and in its place has been created the Stephenson Motor Truck Co., trucks having been the line of the old concern, also. G. L. Stephenson is president of the new company and A. E. Halderman secretary and treasurer.

JUDGE RULES ON THREE CIRCULARS

They Grew Out of Klaxon-Newton Patent Litigation and Lead to Court Order—Justice Chatfield's Decision.

Three printed circulars growing out of the suits for infringement of the Klaxon patents filed by the Lovell-McConnell Mfg. Co. against the Automobile Supply Mfg. Co., and its president, Louis Rubes, of Brooklyn, N. Y., makers of the Newton horn, which circulars were issued to the trade in general, occupied the attention of Judge Chatfield in the United States Circuit Court for the Eastern District of New York, on Tuesday last, 19th inst. After hearing the counsel for both sides, the court entered the following order:

"This cause came on to be heard upon the respondents' rule to show cause and restraining order prohibiting complainants from sending out circulars to the trade, which rule to show cause and restraining order was signed upon the 4th day of September, 1911; and upon the complainants' motion for a preliminary injunction; and the court, after having heard Thomas J. Johnston and George C. Dean, Esqs., on behalf of the complainants, and C. A. L. Massie, Esq., on behalf of the respondents, and having considered thereon,

"It is now ordered, adjudged and decreed that the motion on the rule to show cause and the motion for a preliminary injunction stand adjourned for the further hearing upon September 25, 1911, at 10:30 o'clock in the forenoon, or as soon thereafter as the court can hear the same;

"And in the mean time it is further ordered, adjudged and decreed that the restraining order issued in connection with the rule to show cause and signed upon the 4th day of September, 1911, be and it is hereby modified and limited to a mere direction that the statement of approval by the court contained in the first paragraph of the complainants' circular letter dated August 14, 1911, be eliminated from any copies of the said circular letter which are hereafter sent out; leaving all questions as to the merits of the circular until further order on the motion.

"And it is further directed that all of the parties to this suit refrain from manufacturing any new literature pending the argument;

"And it is further ordered, adjudged and decreed that the respondents shall not circulate further the circular entitled 'Truth' and 'The Facts of the Case' or other letters making representations as to any of the issues of this suit pending the argument;

"And it is further ordered, adjudged and decreed that all the parties shall refrain from comment upon and from sending out information as to the argument of this motion;

"Except that this order of adjournment and modification of the restraining order shall recite the fact that counsel for complainants did present complainants' circular of August 14, 1911, to the court, that the court did not intend to express approval or disapproval of the same; that the restraining order of September 4, 1911, was based only on the fact that it contained the statement of the court's approval above ordered to be suppressed, that such statement was because of a misunderstanding of the court's action through no fault of counsel; and, when entered, this order may be published by either party, and it may be stated that they are authorized by the court so to do."

Changes Among Prominent Tradesmen.

F. A. Babcock, former manager of the Franklin Automobile Co.'s St. Louis branch, has been transferred to the factory sales department at Syracuse, N. Y. Albert M. Pearson succeeds to the St. Louis berth.

W. D. Mercer has been appointed district manager of the Westcott Motor Car Co., of Richmond, Ind., for Illinois, Southern Indiana and Southern Ohio. Previously he was connected with the Marquette Motor Co.

Major B. Hawzhurst, formerly of the Swiss Magneto Co., has been appointed Chicago manager for the Simms Magneto Co. His territory comprises the state of Indiana, Illinois, Wisconsin, Iowa, Missouri and Minnesota.

John A. Nichols, Jr., former district manager for the Franklin Automobile Co. in the Canadian and American Northwest, has been made superintendent of Franklin branches. He has headquarters at the factory at Syracuse.

Paul H. Bruske, who a year ago was identified with the E-M-F advertising and publicity department but who then resigned to re-engage in newspaper work, has returned to the Studebaker Corporation as assistant to Advertising Director Pelletier in Detroit. He will have full charge of the company contest work and publicity and will in no way displace W. G. Pettit, Pelletier's first assistant.

Harry W. Cooper has retired from the Excelsior General Supplies Co., of Chicago, and on the 30th inst. will sail for Australia, where he will become president of the Harry W. Cooper Automobile Co., which will establish depots in Melbourne and Sydney. He already has secured the agencies for three American cars and one electric and a line of motorcycles, also the United States Tire Co.'s account.

Parts Maker Files Bankruptcy Petition.

Lewis W. Flagg, of New Salem, Mass., who describes himself as a manufacturer of automobile fittings, filed a voluntary petition in bankruptcy on the 14th inst. His liabilities are \$5,394 and his assets \$3,430.



Detroit, Mich.—Suburban Motor Car Co., under Michigan laws, with \$500,000 capital.

Norwich, N. Y.—Navoe Auto Co., under New York laws, with \$500,000 capital; to manufacture and deal in motor vehicles.

Detroit, Mich.—Motor Times Co., under Michigan laws, with \$30,000 capital; to deal in motors and motor vehicles. Corporators—George A. Munch, Arthur N. Long, N. Munch.

Newark, N. J.—The Commercial Sales Co., under New Jersey laws, with \$5,000 capital; to deal in automobiles. Corporators—Joseph J. Rafter, John T. Walsh, John W. Phillips.

New York City, N. Y.—International Auto Sales Co., under New York laws, with \$25,000 capital; to deal in automobiles and other motor vehicles. Corporators—H. J. Levy, D. Schwartz, A. Klein.

Canton, Ohio.—Wise-Green Motor Car Co., under Ohio laws, with \$25,000 capital; to manufacture and deal in motor vehicles. Corporators—R. P. Wise, George M. Green, H. B. Fawcett, J. M. Blake, C. T. Carlson.

Boston, Mass.—Paddon Motor Co., under Massachusetts laws, with \$3,000 capital; to deal in automobiles and other motor vehicles. Corporators—Samuel N. Paddon, John Wilbur Paddon, Charles R. Codman.

Joliet, Ill.—Joliet Auto Truck Co., under Illinois laws, with \$10,000 capital; to manufacture and deal in automobiles and other motor vehicles. Corporators—Phil F. Carroll, Milo M. Case, Wilbur O. Dayton.

Lima, Ohio.—Lima Overland Co., under Ohio laws, with \$10,000 capital; to do a general automobile business. Corporators—Samuel Roeder, Howard P. Bears, George E. Bayley, W. E. Bayley, George Roeder.

Jersey City, N. J.—Mechanical Rubber Tire Co., under New Jersey laws, with \$100,000 capital; to manufacture automobile tires and other rubber goods. Corporators—W. T. Wheeler, F. B. Crawford, F. Carter.

Fargo, N. D.—Gate City Automobile Co., under North Dakota laws, with \$50,000 capital; to manufacture and deal in automobiles and other motor vehicles. Corporators—Joseph E. Fields, Fred R. Schofield, M. L. Feckler.

Portland, Me.—American Rim Co., under Maine laws, with \$125,000 capital; to manufacture and deal in wheel rims for automobiles and other vehicles. Corporators—President, J. L. Croteau; treasurer, A. F. Jones.

St. Louis, Mo.—Cherokee Automobile Co., under Missouri laws, with \$2,000 capital;

to build, sell, buy and deal in automobiles. Corporators—Eugen Huber, William Paffrath, H. G. Schneider, William Winkler, five shares each.

Piqua, Ohio.—Piqua Motor Co., under Ohio laws, with \$50,000 capital; to manufacture and deal in motor vehicles. Corporators—L. H. Wessel, O. C. Kalbfleisch, J. C. Fahnenstock, Rupert Fahnenstock, Edward K. Keifer.

Augusta, Me.—Briggs Magneto Co., under Maine laws, with \$600,000 capital; to manufacture electric apparatus and appliances. Corporators—President, L. J. Coleman; treasurer, M. M. Farrar; clerk, Charles L. Andrews.

Florence, Ala.—Florence Garage Co., under Alabama laws, with \$2,000 capital, of which \$1,000 has been paid in; to conduct a general automobile and garage business. Corporators—B. J. Smith, Paul Porch, Henry A. Bradshaw.

Chicago, Ill.—Packard Motor Car Co. of Chicago, under Illinois laws, with \$50,000 capital; to manufacture and deal in automobiles, motor vehicles and accessories. Corporators—Leslie J. Ayer, William Fogel, William H. Barnum, Jr.

Framingham, Mass.—Waverly Street Garage, Inc., under Massachusetts laws, with \$5,000 capital; to deal in automobiles and maintain a garage. Corporators—Lorenzo W. Prouty, Winnie E. Prouty, Frank P. Hewins, M. Louise Hewins.

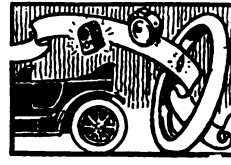
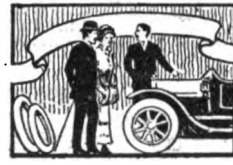
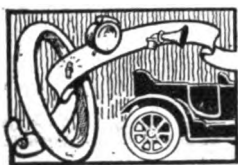
Springfield, Mass.—Auto Spring Wheel Co., under Massachusetts laws, with \$250,000 capital; to manufacture automobile wheels. Corporators—John E. Stannard, George W. Upton, Francis J. Miller, Harry G. Martin, N. Seelye Hitchcock.

Brooklyn, N. Y.—Spring Tire Co., under New York laws, with \$8,000 capital; to deal in automobile tires. Corporators—Henry B. Hill, 180 Montague street; William Eiermann, 1981 Fulton street; William A. Crane, 49 Stone street, all of Brooklyn, N. Y.

Springfield, Mass.—Kutz Auto Tire Co., under Delaware laws, with \$1,000,000 capital; to manufacture woven leather tires for automobiles. Corporators—M. H. Kutz, Springfield, Mass.; Percy Heap, Holyoke, Mass.; Morris Freedberg, 150 Nassau street, New York City.

Portland, Me.—Triplex Tube Co., under Maine laws, with \$1,000,000 capital; divided into \$700,000 common and \$300,000 preferred; to manufacture, sell and deal in tires for all kinds of vehicles. Corporators—Edward J. Connor, C. F. Tennant, William H. Culliver, all of Portland.

Henderson, N. C.—Corbitt Automobile Co., under North Carolina laws, with \$250,000 capital; to manufacture, sell and deal in automobiles and other motor vehicles. Corporators—R. J. Corbitt, D. Y. Cooper, J. B. Owen, J. H. Bridges, A. C. Zollicoffer, S. T. Peace, M. W. Teachey, W. A. Hunt, A. A. Zollicoffer.



John Burnett has purchased the Pope Garage on Sixth street, Logansport, Ind.

Edward Zwiebel & Bro. have opened a garage on Chestnut street, Burlington, Wis.

The Marion Motor Car Sales Co., of Indianapolis, Ind., has filed a notice of dissolution.

A new garage is in course of construction at 1049 Humboldt street, Denver, Colo. R. D. Rees is building it at a cost of \$2,000.

Splitt & Boettcher have opened a garage and repair shop in Manitowoc, Wis. It is located in Washington street, near 12th street.

William F. Codori has opened a large garage on York street, Gettysburg, Pa. It will be in charge of his son, William Codori, Jr.

G. A. Lien has commenced work on a garage at Columbus Wis. It will be of brick and stone, one story and basement. 60 x 80 feet.

A garage 61 x 153 feet in dimensions, two stories high, of cement block, is in course of erection at Siegfried, Pa. Charles and Joseph Porter are building it.

The Hodgins-Fosdick Motor Co., Inc., Chalmers representative in Spokane, Wash., has added commercial cars to its line. Universal motor trucks will be handled.

A. R. & Fred McLennon, who conducted a garage at Fifth street and E avenue, Lawton, Okla., have sold their business to E. A. and Roy Robbins. Buick cars are handled.

J. H. Saris, the Ford agent in Beloit, Wis., and vicinity, has leased the former Broadway skating rink in that city. He will remodel it into a garage 130 x 49 feet.

Simultaneously with taking the agency for several other makes of cars, the Buick Motor Sales Co., of Grand Rapids, Mich., has changed its name to Grand Rapids Auto Co.

H. E. Smith, owner of the Erie Garage on North Ninth street, Sheboygan, Wis., has sold his business to Harry Black and J. E. Clarnbach, who took immediate possession.

C. W. Morton, of Ellsworth, Wis., and Alfred Larson, of Moeville, in the same state, have formed the Morton-Flanders Auto Co. They will handle E-M-F and Flanders cars.

Fred Noetzel, a traveling representative of the Thomas B. Jeffery Co., and A. H. Patch, have formed a company with headquarters in Bloomington, Wis. They will handle Rambler cars.

Louis Benoit has filed plans calling for the erection of a one-story concrete garage

at the corner of Coggeshall and Jean streets, New Bedford, Mass. It will cost, when complete, \$10,000.

W. S. Bechtold and Harry Tonks have formed a partnership and are building a brick garage at 210 Ridge street, Newark, N. J. It will be 52 by 73 feet and will accommodate thirty cars.

J. Arthur Scott, of Oxnard, Cal., and Burson Fowler, of Santa Paula, Cal., have formed a partnership and opened salesrooms in Oxnard. They have the agency for National cars in Ventura county.

The Fitchburg Cab & Auto Co., of Fitchburg, Mass., which hitherto has made a specialty of renting, repairing, storing and dealing in second-hand cars, has added a line of pleasure cars to its offerings. It will sell Stoddard-Daytons.

The Fisher Motor Car Co., said to be the oldest automobile concern in Philadelphia, Pa., has entered the commercial vehicle field and taken the agency for Universal and Federal trucks. Its salesrooms are at 310 North Eleventh street.

W. C. Blackmon, of Galveston, Tex., has purchased the garage of the Teague Motor Co. and that of McCullough Bros., both of Teague, Texas. He will consolidate them and operate them under the style the Teague Motor & Machine Co.

Following in the wake of the other Maxwell agencies and branches throughout the country, Maxwell-Briscoe, Inc., of New York City, has applied to the courts for permission to change its name to United Motor New York Co.

Allan Redmond, of Chippewa Falls, Wis., and Irvine Huebner, of Chicago, Ill., have established a garage and repair shop in the Chase building, Eau Claire, Wis. in addition to doing general repair work they will handle several makes of cars.

H. F. Ayres, who operated a garage in connection with his plumbing business at Muscatine, Ia., has sold the automobile part to H. W. Anundson, of Moline, Ill. Anundson formerly was connected with the Velie Motor Vehicle Co., of Moline.

George K. Foster, formerly connected with the St. Paul Auto Co., and Jack B. Lawrence, of the Minneapolis Ford agency, have formed a partnership under the style the Foster-Lawrence Co., with headquarters at 142 West Fifth street, Minneapolis, Minn. They will handle the Stearns car.

Finding its present quarters too small, the Cadillac Motor Car Co., of Illinois, has broken ground for a five-story service building at Michigan avenue and Twenty-third street, in Chicago. It will cost about

\$270,000, and will be one of the most complete automobile buildings in the Middle West.

Allen Tate, of the firm Leteber & Tate, Homer, Ill., has applied for the appointment of a receiver, the dissolution of the firm and an injunction restraining the senior member, Howard Leteber, from conducting the business. He charges his partner with selling goods at less than cost, with applying profits to own use and denying him (Tate) access to the books.

H. J. Mulock, owner of a garage on South Carolina avenue, Atlantic City, N. J., has been sued for \$10,000 damages by William Frazier, of Philadelphia, Pa., who complains that his automobile was stored in Mulock's garage one evening, and was taken out by unknown parties early next morning. As no trace of the car has been found, Frazier holds the garage owner responsible for the loss.

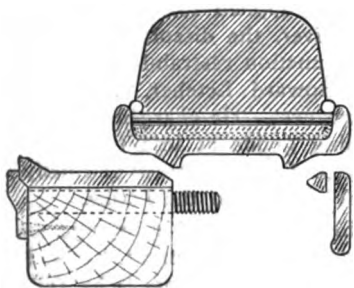
The Geo. W. Hawkins Co., South Texas distributor for the United States Motor Co., has leased a three-story building, 85x127 feet, at the corner of Main street and Dallas avenue, Houston, Tex., which it expects to occupy for ten years as salesrooms. In addition the company has erected a one-story brick garage, 65x127 feet, in the rear of the store, and a service building 50x100 feet on Washington street.

Simultaneously with the opening of new salesrooms in the Hotel Pasadena, Broadway and Sixty-first street, New York City, on October 1st, the Mitchell Motor Co., New York distributor of Mitchell cars, will throw open its new service building at Columbus avenue and Fifty-fifth street. The structure is seven stories high and fitted out with all modern equipment to take care of the needs of the many Mitchell owners in New York City.

Richard Brock, president of the Automobile Livery & Sales Co., New Orleans, La., has filed a petition asking that Charles H. Stock, vice-president of the company, be compelled to show cause why a receiver should not be appointed. Simultaneously with the personal petition, Brock, in the name of the company, filed a suit for \$725 against Stock et al., claiming that an automobile belonging to the company had been burned and that Stock and others had collected the insurance "through the machinations of Fred Stock, a trusted officer of the petitioner." Charles H. Stock and W. Fred Stock, in addition to being connected with the Automobile Livery & Sales Co., are interested in another concern, Stock & Co., Ltd., and Brock asks that the assets of this company be attached to guarantee his claim.

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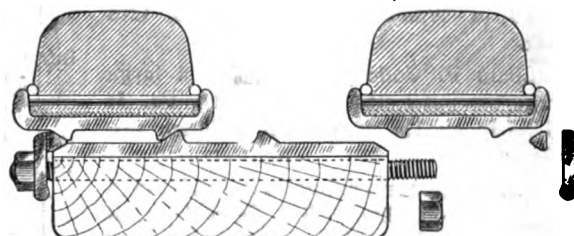
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IKR.B.AD. 62 NightLetter

Chicago, Ills. Aug 21-II.

Firestone Tire & Rubber Co.

Mais Truck wins cup, Class seven K, Truck run Chicago Detroit and return. Account extreme bad road conditions all cars had more or less tire trouble. Equipped with your quick removable rims I was able to make tire changes without delays thus making all controls on time. I consider Firestone quick removable rims the greatest improvement made in connection with solid tires.

9:05a

Albert P. Mais.

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TIME *9:05*
BY *AF*

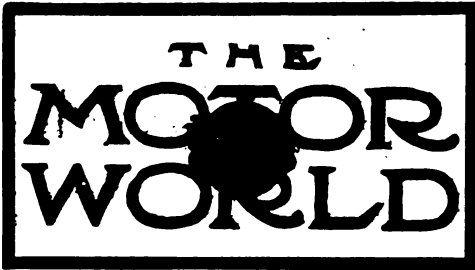
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WERE
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LAY-UP
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R. G. BETTS.....Managing Editor

154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
 Single Copies (Postage Paid) . . . 10 Cents
 Foreign and Canadian Subscriptions . . . \$3.00
 Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
 Should Be Addressed to P. O. Box 646.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, SEPTEMBER 21, 1911.

Reducing the Risk of Accident.

Into practically all sports an element of danger enters. Most of those who engage in such sports recognize the fact and peculiarly enough it is sports in which the element of danger is large, as, for instance, automobile racing or aeroplaning, that appear to hold the greatest fascination for the public. Men and women in large numbers pay to witness such sports and seldom do they reek of danger to which they expose themselves. The manner in which they hug the rails at racemeets is one evidence of the fact. The peril involved is well known; it often has been pointed out and distressing accidents have accentuated it, but it is safe to say that not even the fearful and deplorable tragedy at the Syracuse (N. Y.) meet on Saturday last will be taken to heart or serve to diminish the number of spectators at danger points.

Automobile authorities long ago recognized that only solid retaining walls will render such accidents practically avoid-

able, but when automobile racing and its dangers appear to hold such an attraction for the public, it is not fair to speak too harshly of promoters who provide such sport on such tracks as are available.

Lacking solid retaining walls, however, there are certain precautions that can be and should be observed. To permit the use of high-powered cars on half-mile tracks, for instance, is equivalent to placing a premium on disaster; yet it still is being permitted. Again, to permit racing on a slippery track, or one deep in dust, is equally blameworthy, in which connection it is timely to applaud the action of the two A. A. A. officials—one in Texas, the other in Minnesota—who but two weeks ago resolutely forbade racing on courses that were marred by such conditions; they demonstrated that the way to prevent accidents is to prevent them. The incompetent driver and the car that has gone wrong are two other sources of danger that are not beyond remedy.

The incompetent driver is not so quickly distinguished, but when a car is in trouble it is not so difficult to discover. Certainly, the risk involved in driving a racing car which has shed a tire or any part of it is fairly well known, is a known risk, and to suffer a car to be driven for several miles with a "flapping" tire, as at Syracuse, is a reflection on some one's discernment and judgment. It should have been some one's business to stop that car until the tire had been replaced by a sound one.

After they have happened, it usually is easy to say how accidents might have been avoided, but if racing men are disposed to "take chances" and spectators will tempt fate by occupying perilous places, they should be saved from themselves as much as possible. The way to at least minimize the risks even on existing tracks is fairly plain.

Possibilities of the Gas Turbine.

Believing that the turbine method of converting the kinetic energy of a gas into rotary motion is the most efficient and promising yet evolved, engineers continue to watch its development with keenest interest. Up to this time, however, the gas turbine, meaning that driven by products of combustion which still retain very high temperatures, has not made much headway. Many serious obstacles remain to be overcome though there seems no logical reason why they should not be surmounted in due process of time. What is re-

quired is the application of just such mutual effort as in their days have brought forth the no less marvelous developments in submarine and aerial navigation and wireless telegraphy.

Difficulties already encountered include those resulting from high temperatures and pressures from high natural velocities and from the inadequacy of the usual devices for securing the required high degree of compression. There is reason to expect that the solution of the latter problem ultimately will be found in the turbine principle itself, while the gradual accumulation of authentic data is destined to yield in the future such information as may lead to the solving of the other incidental problems. At present there is a lack of concentration on the subject, not as regards the individual, but collectively as regards the engineering world.

The reason is that at present commercial inducement is lacking. The introduction of the steam turbine was made to await the time when the reciprocating engine had attained what seemed its maximum of efficiency in large installations. The internal combustion engine, recognized years ago as a better machine than the external combustion engine, failed to attain general use until the development of the automobile made it imperative to seek a better substitute for the small steam power plant. The large internal combustion installation, more efficient than the large steam plant today, still remains to be adopted to anything like the extent that it merits.

Efficiency alone does not govern. Elements of first cost, reliability, upkeep, flexibility and general adaptability also enter into the business problem which really governs all questions of development and production. However certain the future of a process or product may be, its marketing must be made to wait on a peculiar combination of circumstances which cannot always be foreseen.

Whether the invention of Dr. Nikola Tesla will materially assist in advancing the day and date of the successful gas turbine it is impossible at present to determine. All that is certain is that he has conceived a wonderful new theory and that on it he has based a steam engine for which almost incredible claims have been made. At the same time there is every reason to suppose that the principle is as readily applicable to the products of combustion as to steam, and that once a suit-

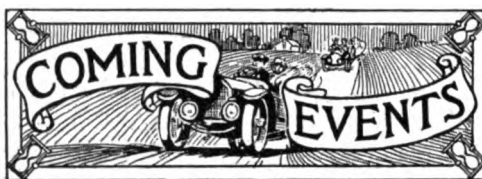
able method of supplying such products has been accomplished the rest will be relatively easy and equally marvelous. It would appear that this invention has brought the gas turbine one step nearer a successful realization, and that it should be hailed with all the enthusiasm which it seems to deserve. At the same time, as one commentator has been unkind enough to indicate, "Mr. Tesla has acquired a reputation for revolutionary inventions that never quite arrived at the point of practical utility;" though it may be contended that the observation has no material bearing in this case.

Real Arrival of the Self-Starter.

According to a harmless provincial superstition, if you wait long enough and wish hard enough eventually you will obtain your heart's desire, it matters little what it may be. Such a fulfilment apparently will be the lot of the buyer of a 1912 motor car that is equipped with a full-fledged automatic engine starting device. Motorists who have wearied of turning the crank, to the point of outspoken protest, at length are having their way; certainly no more logical explanation than this is forthcoming as to why the fall of 1911, rather than the fall of 1909 or 1908, should be the season of popularizing the really dependable starting system.

Four years ago Alexander Winton, with the hardihood of the true pioneer manufacturer which he is, introduced a compressed-air engine starter—gave it away with the new six-cylinder model. The same device is in use today and has become a standard feature of the line. Spasmodically one or two other manufacturers followed the lead with starting systems that, for one reason or another, were not retained. Last year a second manufacturer installed an air-starter on his stock models. With the announcements of the present fall two other makers' names have been added to the same roster, while two more have announced the introduction of electrical systems of the same character. It is not to say that Winton deserves the credit for introducing the engine cranking device. Other inventions were on the market when his was adopted, and the idea had been freely and frequently discussed before and its advantages were patent to all, but he is deserving of mention as the real instigator of the present movement.

Something like a year ago another and eminent manufacturer in a club car con-



September 19-23, Burlington, Vt.—Burlington Merchants' Protective Association's reliability run.

September 23, Lowell, Mass.—Road races under auspices of Lowell Automobile Club.

September 23-25, Detroit, Mich.—State Automobile Association's racemeet.

September 30-October 7, Sydney, N. S. W.—International automobile exposition under auspices of Royal Agricultural Society.

October 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers Association's open air show.

October 3-7, Danbury, Conn.—Track meet under auspices Danbury Agricultural Society.

versation let fall the intelligence that he himself had developed an engine starter, even to the point of mapping out the steps in its production. "And when the time comes to bring it out," he added, "it'll beat 'em all. But I don't have to adopt it just yet," he continued, "because, while the public wants it, it hasn't reached the point of forcing other makers to produce something of the sort. The self-starter is one of those things the public will clamor for but is not willing to pay for. Therefore, so long as competition does not force its adoption, why go to the expense of introducing it?"

That is the situation in a nut-shell. Several useful starting systems have been on the market for a number of years, but their adoption by the individual motorist entailed a certain amount of alteration to the car and just enough expense besides to suppress a really active demand. Furthermore the fact that a good motor frequently can be induced to shoot itself into action "on the spark" has afforded an apparently plausible argument against the added mechanism of a positive cranking device.

It would seem that the time is now ripe for a thorough revival of the starting question, however. Competition requires added stimulus and manufacturers uniformly are seeking it through the medium of added equipments. The public, weary of standing in the mud and "swinging" a heavy motor, has had its eyes opened to the truth that the ignition system, no matter how well made, cannot in the nature of things start the motor every time; it never could and

October 7, Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

October 9-13, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

October 12-22, Berlin, Germany—International automobile show in Exhibition Hall, Zoological Garden.

October 13-14, Atlanta, Ga.—Racemeet under management H. C. George.

October 14, Santa Monica, Cal.—Santa Monica road races under auspices of Santa Monica Motor Car Dealers' Association.

October 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

November 1, Waco, Texas—Racemeet under auspices Waco Automobile Club.

Nov. 3-11, London, England—Society of Motor Manufacturers' and Traders' annual show in Olympia Hall.

November 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

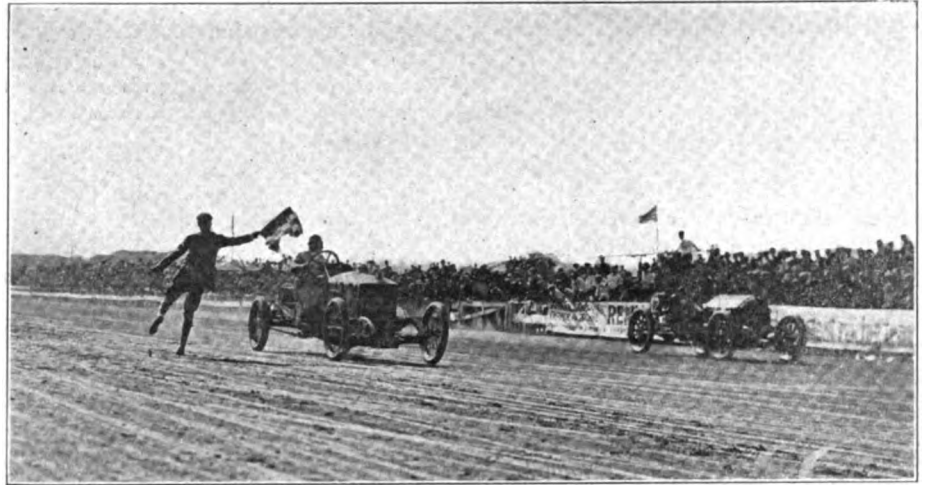
never will. The question is plainly "up to" the car builders themselves now, and those of them who do not adopt mechanical substitutes for the hand crank this year likely will be harder pressed to do so later.

Mr. "Ernie" Moross has become rarely jealous of the reputation of his chief charge, Mr. Bob Burman. To say that Mr. Burman negotiated one mile in 1:07 in the course of a three-mile race when the time actually was made in a one-mile time trial, Mr. Moross considers such an "extremely libelous statement" as to require the attention of his "New York lawyer." He has so informed the Motor World, which made that statement in its report of the Montreal meet on August 20th. And not because of Mr. Moross or his New York lawyer, but to preserve the reputation of Mr. Burman, the Motor World is pleased to make known that the time was made in a mile trial and was not an intermediate mile. The Motor World repeats, however, that "one mile records for half-mile tracks" do not count, and that the only recognized records and the only ones booked by the A. A. A. are those made on tracks of one mile or larger; if this be libelous, Mr. Moross can make the most of it. Also, it is pertinent to suggest that he himself might enhance the repute of his men if he ceased claiming such "records," and left them to Mr. B. Oldfield, on whom the Motor World has been disposed to consider both Moross and Burman welcome improvements.

TRAGEDY MARS MEET AT SYRACUSE

Lee Oldfield Charges Into Dense Crowd
and Twelve Deaths Result—De Palma
Three Times in Front.

Even though Burman did lower De Palma's two-mile record at Brighton Beach on Labor Day, he has nothing on the New Yorker. De Palma got right back at him on Saturday last, 16th inst., at Syracuse, N. Y., and administered as sound a drubbing to Moross's star as ever he received. He beat him in a 10-mile race, and he beat him in a 50-mile race, and then, just to show what he really could do, he accomplished what never has been done before: For the first time since the Remy Brassard fell into the hands of Moross's coterie of race drivers an "outsider" won a "leg" on it and that outsider was De Palma behind the



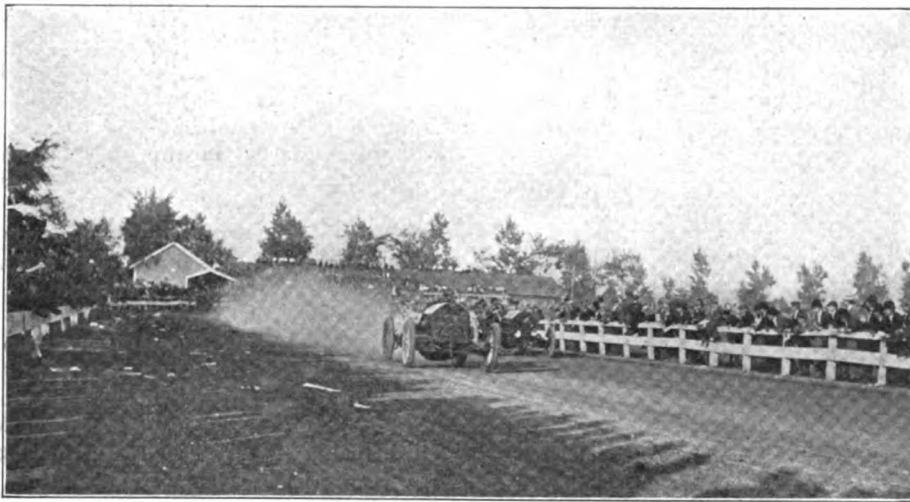
BURMAN (OPEL) BEATING TURNER (AMPLEX) IN FIVE MILES RACE

der Knox, Lee Oldfield, who, according to Berna himself, "has been advertised by greedy gold-thirsty promoters as my

of the 14 who were injured three died subsequently. Oldfield, whose exact lineage is shrouded in mystery, but who is said to be an Italian, escaped with a broken rib and minor bruises.

The specific cause of the accident was a blown-out right front tire. Oldfield had driven for several miles with a part of the tread flapping and though the danger of the proceeding was known to driver and officials alike he would not stop, nor was he stopped, instead, it is said, that interested people urged him on, inciting him to even greater speed, as De Palma then was closing up on him. In spite of the fact that it quickly became known that a number of persons had been hurt in the accident, the officials refused to stop the race and De Palma drove the last few laps with hundreds of spectators running excitedly over the track. Only an act of Providence saved them from themselves.

The track itself was not in the very best of condition. Though it was as smooth as could be expected, practically all of the wrinkles having been ironed out in anticipation of the meet, the advent of President Taft earlier in the afternoon, and the necessity for the sprinkling of an abundance of



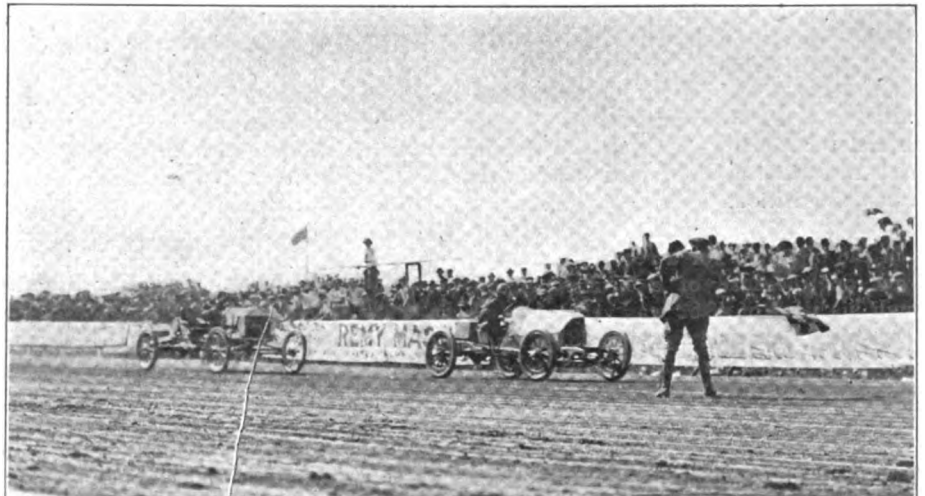
DE PALMA AND OLDFIELD NEAR SCENE OF TRAGEDY

wheel of a Simplex. Incidentally, he established a new record for 50 miles on a circular dirt track, breaking Berna Oldfield's record made at Dallas, Tex., in 1909, and hanging up a new figure of 47 minutes and 21.65 seconds.

The meet at which De Palma did all these things was held in connection with the State fair at Syracuse and was witnessed by one of the largest crowds, if not the largest, that ever attended an automobile racemeet. Long before the opening event the stands were jammed and the rails for the entire distance around the mile track were lined five and six deep. It was the very immensity of the throng and the crowding of the rails that unhappily made possible the worst tragedy that ever has occurred in connection with automobile racing. It happened during the 50-mile race and changed what might have been remembered as one of the most successful racemeets into the most sorrowful one.

At the wheel of Fred Belcher's six-cylin-

brother, though he is not the slightest relation," plunged through the fence in the back stretch during the 47th mile of the 50-mile race and killed nine persons outright;



ROBERTS WINNING FROM KULICK IN 161-230 INCH CLASS

water in order that he might make a circuit of the course in comparative comfort resulted in a rather sloppy track. In fact it was so sloppy just prior to the 50 miles race that De Palma and Burman refused to compete. During the continuance of the argument, however, Old Sol got in his good work and by the time it had been decided to put the race on anyway, the track had dried out considerably and the two drivers decided to go on after all.

Of the other events, a 5-mile race for cars in the 301-450-inch class furnished the closest finish of the afternoon. Turner, who, like Burman, boasts the sobriquet of "Wild," hitched in front of an abbreviation of his first name, which is William, led very nearly the whole distance with an

race was put on and owing to its unhappy ending the remainder of the program was called off and De Palma did not get a chance to tighten his grip on the Remy trophy by winning another heat. The summary:

Five miles, class C, 161-230 inches displacement—Won by Mortimer Roberts, Abbott-Detroit; second, Frank Kulick, Ford. Time, 5:05:79.

Five miles, class C, 231-300 inches displacement—Won by Hughie Hughes, Mercer; second, Ralph De Palma, Mercer. Time, 4:57:22.

Five miles, class C, 301-450 inches displacement—Won by Robert Burman, Opel; second, William Turner, Amplex. Time, 5:01:75.



VIEW SHOWING IMMENSITY AND DENSITY OF CROWD

Amplex. In the last lap Burman in the Opel car, which apparently has been added to the Moross string since its recent good performance at Brighton Beach, closed up and managed to nose out Turner almost at the wire.

De Palma won his first victory of the afternoon in a 10-mile race for the big cars—600 inches displacement and under. Driving a red Simplex "50" he had a particularly easy time, Turner (Amplex) being the only other driver to finish. Burman and the Opel started, but tire trouble caused the withdrawal of Moross's newest German acquisition.

Earlier in the afternoon Burman went out in the big Benz for a record, but failed to get one because of a broken piston, though his time of 48.82 was very close to his own world's record figure of 48.62, made at Brighton Beach on Labor Day. Owing to the damage to the Benz, Burman elected to drive a Mercedes in the first heat for the Remy Brassard. De Palma in his Simplex and Kilpatrick in a Hotchkiss were the only other starters, the former winning in 2:54:57. Following this race the 50-mile

One mile record trial by Robert Burman (Benz). Time, 48:82 seconds.

Ten miles, class C, under 600 inches displacement—Won by Ralph De Palma, Simplex; second, William Turner, Amplex. Time, 9:39:56.

Three miles, free-for-all for Remy Brassard—First heat won by Ralph De Palma, Simplex; second, Robert Burman, Mercedes. Time, 2:54:57. No other heat run.

Fifty miles, class E—For cars under 300 inches displacement, won by Mortimer Roberts, Abbott-Detroit; second, Hughie Hughes, Mercer. For cars from 300 to 600 inches displacement, won by Ralph De Palma, Simplex; no second. Time, 47:21:65.

Savannah Removes Stock Car Stipulation.

The Savannah and Tiedeman trophy races which will be run in Georgia coincidentally with the Vanderbilt cup race on November 27th, are to be non-stock instead of stock chassis events as heretofore has been the rule. The change, which removes these two events from class B, stock chassis division 2B and 3B, and places them in class C non-stock chassis divisions 2C and

3C, was made at the request of a number of manufacturers and follows a conference between Chairman Butler of the American Automobile Association and President Harvey Granger of the Savannah Automobile Club. Under the amended rules the two light car races will differ from the Vanderbilt and Grand Prize events only as regards piston displacement and distance. The Savannah trophy race is for cars of from 231 to 300 inches displacement, and the Tiedeman trophy event comes in the next smaller classification—161-230 inches displacement; the International Grand Prize race is virtually a free-for-all, there being no restrictions, and the Vanderbilt cup cars are restricted only in the matter of piston displacement, which must be between 301 and 600 cubic inches. Two days will elapse between the running of the Grand Prize and Vanderbilt cup races, the former being scheduled for November 30th.

Burman Shows at Grand Rapids.

Drawn from all sections of Kent county, Michigan, thousands gathered at Comstock Park, Grand Rapids, Mich., 13th inst., to greet Robert Burman, a native son, and see him "do things" with his big Benz car. They were not disappointed, for Burman clipped off four-fifths of a second from the track record of 51 seconds which he established last summer. His time was 50½ seconds. The races were held in connection with the West Michigan Fair and were the feature of the day. Burman did not have a walkover, however. In the five miles for the Remy Brassard, best two out of three heats, he won two successive heats from H. J. Kilpatrick, Hotchkiss, and Lee Oldfield, Mercedes, who pressed him hard. In the five miles match between Joe Jagersberger, Case, and J. McNay, Cutting, the former won by a small margin. Ray Harroun, Marmon, drove a three miles match with Lou Heineman, Case. It was Harroun's only appearance and he drew a fine finish, Heineman being second by a few lengths. The free-for-all handicap, at five miles, in which there were but two starters, was won by L. Heineman. The summary:

Five miles match, Joe Jagersberger, Case, vs. J. McNay, Cutting—Won by Jagersberger. Time, 6:07¼.

Five miles, free-for-all, for Remy Grand Brassard, best two out of three heats—Won by Bob Burman, Benz, in two straight heats; second, H. J. Kilpatrick, Hotchkiss; third, Lee Oldfield, Mercedes. Time, first heat, 5:06¼; second heat, 5:03½.

Three miles match, Ray Harroun, Marmon, vs. Lou Heineman, Case—Won by Harroun. Time, 3:27¾.

One mile trials, to beat track record of 0:51—Bob Burman, Benz, 0:50½; Lee Oldfield, Mercedes, 0:56¼; H. J. Kilpatrick, Hotchkiss, 0:58¾.

Five miles, free-for-all handicap—Won by Lou Heineman, Case (10 seconds); second, Joe Jagersberger, Case (scratch). Time, 5:14.

CHICAGO'S TRUCK DEMONSTRATION

Thirty-two Vehicles Engage in it and Not All Survive—Horse-Drawn Truck Also Plays a Part.

Styled a "transportation sample" rather than a contest, the Chicago Motor Club's three days' reliability run for commercial vehicles, which was started on Monday, 18th inst., was finished yesterday (Wednesday), though the final scores have not yet been made public. Officially, the run was a "Grade 1" contest, which, according to the rules of the American Automobile Association, implies penalization for lateness at controls, for the replacement of parts, and if the final technical examination shows that any parts are out of kilter; also the trucks were required to carry loads equal to their rated capacity.

The reason for the unusual appellation was that the run was intended primarily as a demonstration of the superiority of motor trucks over horse-drawn trucks for city and suburban delivery. To make the demonstration all the more convincing a truck drawn by a team of horses and loaded with two tons of sand was started on Tuesday morning and required to make the run scheduled for the motor trucks on Wednesday in two days and finish at the same time.

The route covered each day embraced an average of about 65 miles in and about Chicago. The 32 trucks which started were as follows:

501-1,000 pounds capacity.		
No. Truck.	Driver.	
1—Mercury	Joe Alkofer	
2—Mercury	William Lott	
1,000-1,500 pounds capacity.		
3—Clark	Eugene Odin	
4—Buick	Albert Easterday	
5—Sampson	Hugh Kranskey	
6—McIntyre	C. A. Thomas	
7—Crown	Theo. Hallnagel	
8—Krickworth	J. M. Worth	
1,501-2,000 pounds capacity.		
9—Clark	McCue	
10—Clark	L. Wallwork	
11—Le Moon	A. R. Le Moon	
12—Little Giant	E. W. Alpin	
14—Adams	C. C. McLean	
15—Swanson	C. V. Severin	
16—Lauth Jurgens	William Jurgens	
17—Lauth Jurgens	F. W. Herrick	
18—Decatur	R. S. Mattson	
19—Monitor	C. M. Barnikow	
20—Chase	Mraz	
2,001-3,000 pounds capacity.		
21—McIntyre	William Smith	
3,001-4,000 pounds capacity.		
22—Stegeman	Oscar Stegeman	
23—Reliance	J. S. Carney	
4,001-5,000 pounds capacity.		
24—Mais	T. S. Davies	
5,001-7,000 pounds capacity.		
25—Alco	F. T. O'Mara	
26—Old Reliable	F. L. Kline	
27—Dayton	Haines	
28—Pope-Hartford	James L. Russell	

7,001-10,000 pounds capacity.

29—Saurer	F. C. Atwell
30—Stegeman	William Stegeman
31—Sampson	H. Shires
32—Alco	Thomas Rooney

10,001-15,000 pounds capacity.

33—Saurer	Fred. Berger
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Fifty-two miles was covered on the first day, the out-and-home route leading by way of South Chicago, Whiting and East Chicago to Hammond, where the noon control was located. Owing to recent rain and many torn up streets undergoing repairs, the going was bad for nearly half the distance, and as a result three of the trucks were penalized. The Swanson truck, driven by C. V. Severin, skidded off the road just outside of Hammond and broke a radius rod and wheel. It was unable to continue and was withdrawn. C. M. Barnikow, in the Monitor, drew 668 points, 300 of them being for lateness at control and 368 for clutch trouble and a fractured rear axle. J. S. Carney's Reliance was assessed three points for taking on oil out of control. Incidentally, the Reliance is the oldest truck in the run, it having been in continual use for the past six years.

On Tuesday the trucks went to Evanston and then back to Chicago in the morning, and were parked in the stock yards during the noon control. In the afternoon the program consisted of a run to Oak Park and return.

The roads were even worse than they were on the first day, and five more of the trucks lost their perfect scores. Three of them, the Alco, No. 21 McIntyre and the Monitor were withdrawn and No. 23 Reliance increased its penalty by 316 points for replacing a bearing. The withdrawal of the Alco was caused by a burned out bearing, and the McIntyre was taken out because of a bent steering gear caused by a collision with a wagon. No. 2 Mercury picked up 72 points for coil trouble, while No. 6 McIntyre was given 24 demerits for time lost when the truck ran into a man. The driver stopped his machine long enough to ascertain that the man was not hurt seriously, after which the pedestrian was taken to his home in the contesting truck. No. 14 Adams was taxed 14 points for taking on oil outside of control. The route on the final day was to Chicago Heights and return.

Few Motor Cars in Switzerland.

According to recent statistics, there are but 2,602 motor vehicles in Switzerland, this number comprising 326 trucks and 2,276 pleasure cars. The number of imported machines in service is 1,454 as against 1,148 of Swiss manufacture. An interesting detail of the report is the table indicating the horsepower of the pleasure cars, which discloses that 45 per cent. of those in use in the mountainous republic are between 11 horsepower and 20 horsepower, while 26 per cent. range between six horsepower and 10 horsepower.

MORE THAN 900 MILES IN 12 HOURS

Britisher Breaks a Long Standing Record on Brooklands Track—Upsets Theories by Using Moderate Powered Car.

After having stood for over four years, the world's record of 799 miles and 1,600 yards for 12 hours' continuous running, which was made by S. F. Edge on the Brooklands track in England, was bettered on Friday, 1st inst., by the very comfortable margin of 107 miles and 1,695 yards. The new record is 907 miles 1,535 yards, and was made on the same track by L. Coatelen with a six-cylinder Sunbeam car. Edge's old record was made on June 28, 1907, with a six-cylinder 60 horsepower Napier in a 24 hour exhibition. Coatelen's record also was made in an exhibition, though of only half the duration of the other.

Upsetting a theory of British motorists that Edge's record could not be bettered except with a car of greater power, Coatelen's performance is noteworthy in view of the fact that his Sunbeam car was rated at but 30 horsepower according to the Royal Automobile Club formula. At the end of the third hour, at which time 223 miles and 594 yards had been covered, Coatelen was nearly 39 miles behind the existing record, but as there was a gap of but 10 miles in the old record between the third and fourth hours, he easily got inside the old figures at that point and thereafter he steadily increased his lead, breaking all intermediate marks between the fourth and twelfth hours. His average speed, including seven stops for tire changes and the replenishment of oil and gasoline supply, was close to 76 miles an hour. The new records and the old ones are given in the following table, the old records for the first three hours having been made by A. Smith with a Thames car rated at 59.1 horsepower and the others being Edge's:

Hour.	Distances. Existing Records.			
	Miles.	Yards.	Miles.	Yards.
1	74	1,076	89	892
2	150	430	173	810
3	223	594	261	1,653
	New Records.		Old Records.	
	Miles.	Yards.	Miles.	Yards.
4	300	1,421	271	1,160
5	373	135	342	1,350
6	451	445	407	60
7	525	568	474	360
8	602	975	537	1,210
9	678	168	609	720
10	757	928	670	1,200
11	832	1,704	737	480
12	907	1,535	799	1,600

No Racemeet at Knoxville Fair.

There was no automobile racing at Knoxville, Tenn., during the Appalachian exposition. A meet had been announced for the 15th inst., but after correspondence with the contest board of the A. A. A., the exposition managers concluded to abandon the plan.

NO CLEAN SCORES IN OMAHA CONTEST

**Technical Examination Decides the Awards
and Spoils Hopes of Four Contenders
—Gottberg Gets Biggest Purse.**

Four of the contestants in the Omaha (Neb.) endurance run, 12th to 15th inst., certainly were jarred when the technical committee put a crimp in their perfect scores after traveling over nearly 700 miles of give and take roads between Omaha and North Platte, Neb. Each had made the entire distance without trouble of any kind and saw the glory coming his way, but when the mechanical examination was finished they had been penalized to such an extent that they were merely in the "also ran" class. The run was conducted by the Omaha Motor Club, although promoted by the World-Herald, which in addition to offering cash prizes to the two drivers having the lowest penalties, awarded two other purses—one to the county and the other to the township having the best roads.

Max Gottberg, at the wheel of a Ford, who lost one point on the road, passed the technical examination with the least debit—13 points—and therefore was awarded first honors. The second went to the Marion Auto Co., whose car had two points charged against it for road performance and 33 for loose bolts, nuts, etc. The four having perfect road scores were: B. M. Burbank, Paige-Detroit; Maxwell Co., Maxwell; Jack Sharp, Alco; E. H. Sprague, Chalmers. Although they were able to negotiate the roads without mishap, the rough going caused broken springs and loose joints for which they were assessed by the technical committee 50, 54, 98 and 195 points respectively.

Grand Island, the night control Tuesday, 12th inst., was reached by all in good style: each driver covered the 151.9 miles without penalty. Except for wet spots near the control, caused by rain during the two preceding days, the roads were in excellent condition. Wednesday, however, the route of 168 miles to North Platte was more strenuous. From Grand Island to Shelton it was easy going but from there to North Platte most of the motorists were unfamiliar with the country and frequently lost the route through the foothills. On the return, Thursday, Hastings (174.6 miles) was the night control, and like the preceding day all but those who made the entire trip without penalization lost one or more points. From Hastings to Omaha (172.4 miles) was the route on Friday.

Bert Murphy, who piloted a three-ton Kelley motor truck as a non-contestant, secured a perfect road score but the technical committee found one loose nut on the sprocket and assessed one point.

The contestants and their penalties were as follows:

Driver and Car.	Penalties.	
	Road.	Tech. Total.
Max Gottberg, Ford.....	1	13 14
Marion Auto Co., Marion..	2	33 35
H. S. Baker, Velie.....	3	35 38
E. R. Wilson, Lexington..	17	25 42
B. M. Burbank, Paige-Det.	0	50 50
Maxwell Co., Maxwell....	0	54 54
J. Kopak, Ford.....	22	37 59
Jack Sharp, Alco.....	0	98 98
E. H. Sprague, Chalmers..	0	195 195
C. D. Wood, Case.....	57	139 196
R. R. Held, Lion.....	17	192 209
Bruce Malcolm, Paige-Det.	138	100 238

The penalties as reported by the technical committee were as follows:

Max Gottberg, Columbus, Neb., Ford—Loose bearing, left front wheel, 5; two leaky hose connections, 3; loose propeller shaft housing, 4; nuts off two bolts, filler board, 2. Total, 13. Road score, 1. Grand total, 14 points.

Marion Auto Co., Marion—Both front wheels loose, 5; oil pipe disconnected, 3; wire bracket gone on boiler, 2; hood fastener gone, 2; loose terminal, 4; broken presto clamp, 5; pumping up tire while in control, 2. Total, 33. Road score perfect. Grand total, 33.

H. S. Baker, Velie—Two front wheels loose in bearing, 10; right rear axle loose bearing, 5; loose oil connection, 1; cut-out rod unscrewed, 1; rear bearing loose in transmission, 5; fan bracket loose, 4; break in gas light line, 3; spring saddle loose in right wheel, 4; lost oil cup, 2. Total, technical, 35. Road score, 3. Grand total, 38 points.

E. R. Wilson Auto Co., Lexington—Steering gear loose in frame, 2; leaky radiator, 20; tail pipe on muffler loose, 1; straps off right rear wheels, 2. Total, technical, 25. Road score, 17. Grand total, 42 points.

B. M. Burbank, Paige-Detroit—Both body side members broken, 20; right front steering pivot loose, 15; front main bearing in motor loose, 5; exhaust pipe coupling loose, 1; spring broken on side of gear control, 5; leaky oil pipe, 1; leaky gas line, 1; strut rod loose, 2. Total, 50. Road score, perfect. Grand total, 50.

Maxwell Co., Maxwell—Both rear wheels loose, 10; rear axle, loose bearing in differential, 5; steering pivots loose, 30; leaky oil pipe, sight feed leaking, 2; disk loose on magneto, 2; rear universal loose, 5. Total technical, 54. Road score, perfect. Grand total, 54.

J. Kopak, Ford—Two front wheels loose, 10; right rear wheel loose, 5; bolts loose on tie rod, 2; emergency brake, 13; left fender cracked, 5; one loose terminal, 1; horn bulb broken, 1. Total, 37. Road score, 22. Grand total, 59.

Jack Sharp, Alco—Right rear wheel loose on bearing, 5; left front spring clip broken and right rear spring clip loose, 15; steering pivots loose, 30; hanger bracket loose on muffler, 1; transmission bearing loose, 5; emergency brake test, 11; distance in wheels, 25; lamp nut loose, 1; nut loose in wind shield, 1; magneto shaft leaking oil, 1; breathing tube loose, 1; fan belt loose, 1.

Total technical, 98. Road score, perfect. Grand total, 98 points.

E. H. Sprague, Chalmers—Right rear, right front and left front wheel bearings loose, 15; six leaves broken in left, one leaf broken in right rear spring, 35; right side rear axle housing loose, 60; right rear door and dust guard broken, 50; exhaust pipe loose, 1; propeller shaft loose both ends, 10; distance between axles, 10; bent and broken right fender, 6; nut gone left front lamp, 1; shock absorber bent, 3; pressure pipe cracked, 3; radiator loose on support, 4; right lamp bracket broken, 3; dust pan bent, 3; wire broken on cut-out, 1. Total technical, 195. Road score, perfect. Grand total, 195 points.

C. D. Wood, Lincoln, Neb., Case—Right rear wheel loose, 5; one leaf broken left front spring clip loose, 5; one cylinder missing fire, 1; leaky hose connection, 1; transmission leaking oil, 1; emergency brake rod broken, 100; foot brake, 7 points; distance in wheels, 5; lamp bracket broken, 3; footboard bracket loose, 3; muffler rod loose, 1; loose oil connection, 1. Total technical, 139 points. Road score, 57. Grand total, 196.

R. R. Held, Lion—Right front and left rear wheel loose, 10; steering gear loose on frame, 2; three rocker arm bolts loose, 2; two loose connections, 2; front brake, 51; emergency brake, 15; spreading wheel, 60; pan loose, left side, 3; muffler bracket broken, 30; nut loose on brake rod, 1; screw loose on footboard, 1; bolt broken, lamp bracket, 1. Total, 192. Road score, 17. Grand total, 209.

Traynor Auto Co., Paige-Detroit—All four wheels loose in bearings, 20; right front steering pivot loose, 15; body loose on frame, 2; knob off door handle, 1; loose terminal, 1; leaky water jacket, 50; carburettor poor, 5; foot brake test, 5; hood catch gone, 1; bolts out truss rod, left side, 1; pan down, right side, 3; left front lamp bracket loose, 3; fender iron broken, 6; loose fan belt, 2. Total technical, 100. Road score, 138. Grand total, 238.

Bert Murphy, Kelley truck—One loose nut on sprocket, 1. Road score, perfect. Grand total, 1.

Lamps for All in Minnesota.

Unnoticed and with as little noise as possible a small sentence was slipped into the new motor vehicle law of Minnesota, and as a result all vehicles, whether motor or horse driven, must carry a white light visible from the front and rear. The law specifically declares the light must be so visible, regardless of whether it is carried in the hand, on a mast rigged up or carried between the wheels. The law was passed some time since, and it is only now that Minnesotans have awakened to the lamp clause contained in it, and a storm of protest is brewing. The law will go into effect on January 1, 1912, and it is stated that few teamsters have heard of it.

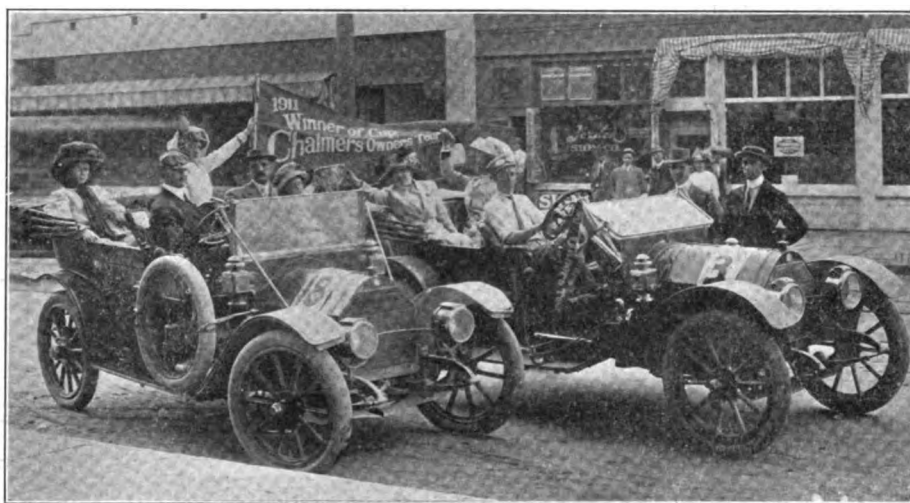
OWNERS IN CONSISTENCY CONTEST

Denver Dealer Stimulates Amateur Spirit and Promotes Sociability Between Customers—Two Tie for Trophy.

One of those highly desirable and equally rare affairs, a purely amateur contest, into which even a professional burglar would have been put to considerable pains to jimmy his way, was held in Denver, Colo., on Thursday and Friday last, 14th and 15th inst. Only one brand of car, the Chalmers, was eligible, and the run, which was the second annual affair of its kind, was styled the Chalmers Owners' Consistency Run. The McDuffee Motor Co.,

and Denver was reached late on the afternoon of the same day.

The result of the contest was a tie between Allen de Berry Bowen and Dr. Edward Lazelle, each of whom finished the tour with only two points debit. Third place went to F. C. Dreher, who had three points charged against him, the rest of the 21 contestants drawing varying penalties up to 46 points, which number was meted out to Willis V. Elliot, district attorney for the city of Denver, who drove car No. 13, and received the booby prize. The winner will be decided by a run-off, which will take place probably within a week, and will be a sort of pocket edition of the original tour as many of the contesting cars will accompany these two during their private contest.



DR. EDWARD LAZELLE, A. DE B. BOWEN AND THE CHALMERS OWNERS' CUP

Denver agents for Chalmers cars, fathered the event.

Though there were nine secret controls and contestants were required to pass them on time under penalty of losing two points for each two minutes early or late, the run was not a guessability contest as ordinarily is understood. Instead, it was a big improvement on such affairs as drivers were told what speed to make and were given some opportunity to use their judgment. In reality the run smacked more of the genuine sociability run as all of the 24 cars entered carried in addition to the owner-driver, some of his immediate friends, and in the majority of cases his wife and children, and the promoters dispensed hospitality en route.

The total distance traversed was about 200 miles, the route out from Denver leading through the Big Thompson Canon to Estes Park, where tents were erected and the night was spent. The trip outward, or for that matter, the whole trip from end to end, was unmarred by mechanical derangements, one or two punctures and a single blow-out being the only troubles experienced. For the return journey, which was started the next morning, the alternate route by way of Boulder was chosen

Including the four names already mentioned, the drivers were as follows: Mrs. R. H. John, Merle Turner, A. J. Myerpeter, J. L. Bickerdike, Dr. Charles Jaeger, E. A. Inskeep, Robert Koenne, G. W. Parfet, Harry Heert, Stewart Way, Norman Estey, George R. Funk, E. C. Healey, George E. Bermot, E. B. Field, Jr., J. E. Allen, Norman Estey, A. Ksinsky, John F. Mail, Claudius Raymond, G. W. Hamilton. C. C. Hildebrand, from the Chalmers factory; Alex Nesbit, referee, and J. H. McDuffee, the promoter of the contest, occupied the official car.

Motorist Beats A Fire Department Law.

Arrested on a charge of driving his automobile over two lines of fire hose, while they were being used at a fire, Dr. L. H. Redmon, of Elizabethtown, Ind., had to be discharged by the Columbus (Ind.) authorities, because the ordinance did not specifically name automobiles among the vehicles forbidden to run over fire hose. The ordinance was issued years ago when automobiles were few and far between. As soon as the deficiency was discovered the fire department took steps to have the ordinance amended so as to include motor cars and motorcycles.

METROPOLITAN SPEEDWAY IN SIGHT

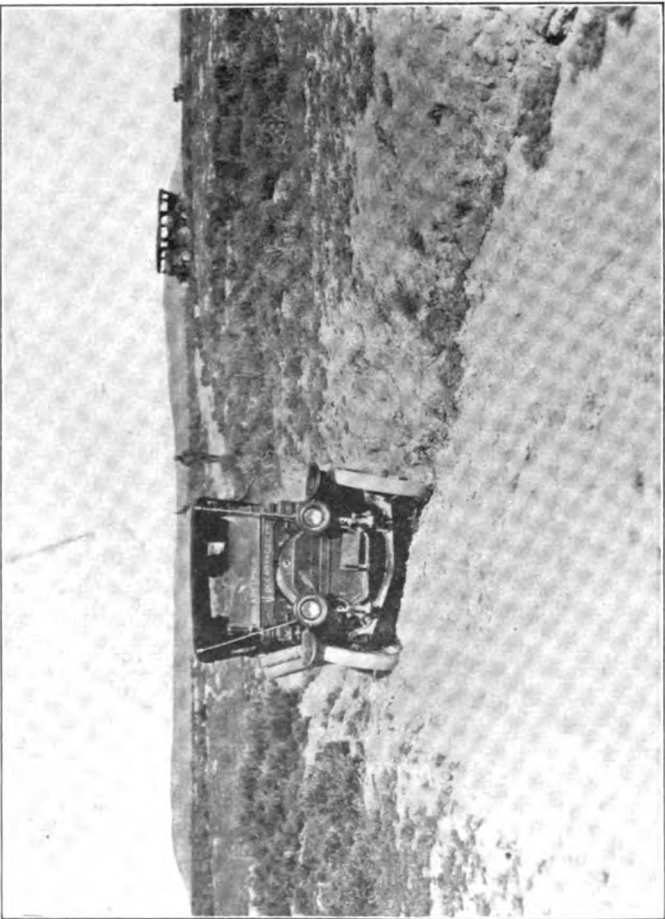
Movement That Promises Consummation of Oft-Planned Project—Option Secured on Site for Two Miles Track.

Although the Long Island Motor Parkway has fallen far short of anticipations as a profitable speed course and though many gigantic speedway schemes have been born only to die with the scheming, it appears that Metropolitan motorists now are much nearer than ever before to seeing such a circular course with their eyes instead of in their mind's eye. The waste lands between the Hackensack and Passaic rivers and lying between Jersey City and Newark is the likely place and the Metropolitan Speedway Association which just has been incorporated under New Jersey laws with \$1,500,000 capital, is fathering the project.

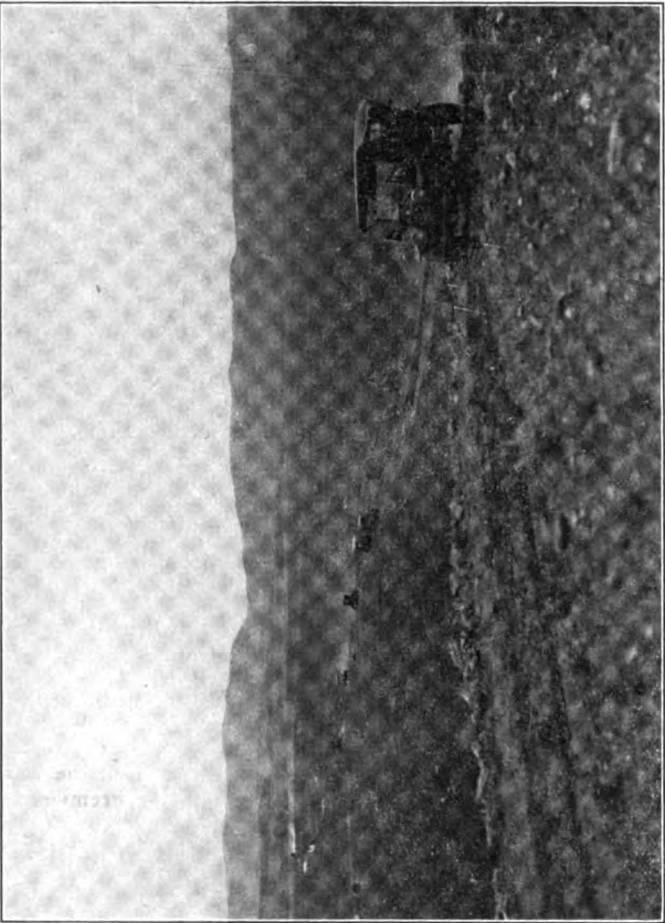
Far from being as mythical as were so many other ventures of the sort, an option on 330 acres of land actually has been acquired and those concerned in the project prophecy that the deal will be closed and work commenced in time to permit the initial racemeet to be held early in the fall of 1912. The property is a salt marsh meadow which will have to be filled. According to present plans, the speedway will be similar to that at Indianapolis, except that it will be half a mile shorter in circumference; like the other, it is to be surfaced with vitrified brick. It is stated that Carl Fisher, president of the Indianapolis Speedway, will be consulted, and that the two courses will be operated without conflict. Among those identified with the enterprise are a number of Jersey City capitalists and men connected with the trade, including A. L. Oliver, who is a director in several banks; W. A. Van Kuren, a wealthy Jersey City contractor; Walter M. Dear, of the Jersey City Journal; F. J. Wagner, George Paddock, H. W. Runyan, F. Dunham, Thomas H. Williams, Addison Johnson, Charles E. Collard, Isaac N. Quimby and J. W. Kelly. A meeting of the stockholders will be held in a few days when officers will be chosen.

Milwaukee Ordinance Declared Invalid.

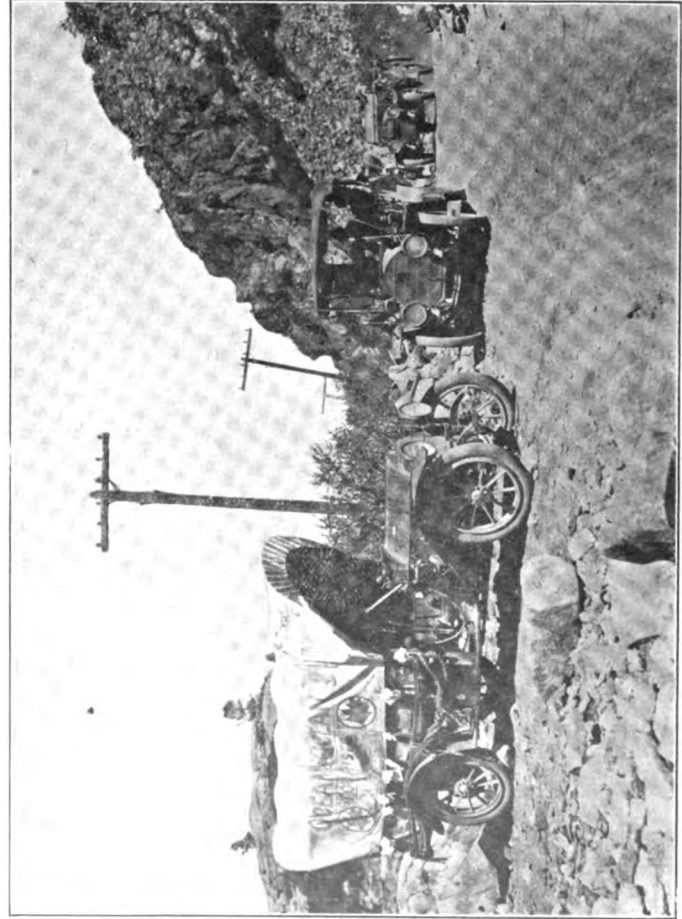
Judge Backus, of Milwaukee, Wis., on Wednesday of last week declared the Milwaukee city ordinance, which provided for a jail sentence for a second offense of speeding, to be unconstitutional and invalid. The opinion was called forth by the case of Frank Meyer, a chauffeur, sentenced to jail for 10 days for speeding. The city attorney, when his attention was called to the new state automobile law, admitted that there was a doubt as to the constitutionality of the local ordinance, and moved the dismissal of five other cases of similar nature, which had been awaiting the outcome of the Meyer case.



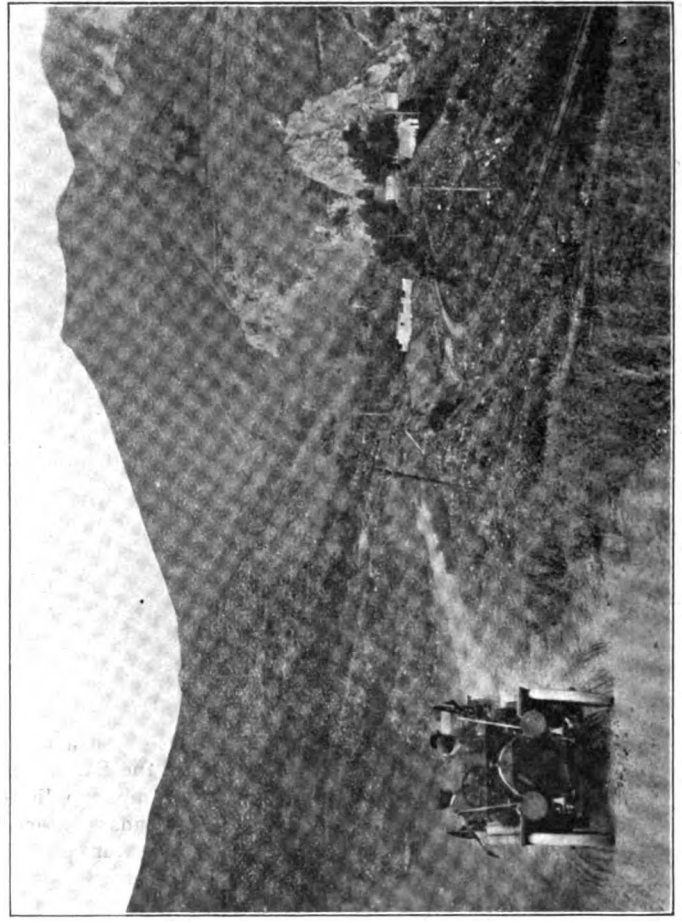
One of the Most Strenuous Stretches of the Trip—West of Ogden, Utah, where rough going prevailed



Circling the Great Salt Lake in Western Utah—Dreary stretches of arid plains providing little rest for the eye



Topping the Sierras—The pilot "Schooner" waiting for the rest of the fleet to climb the 27 per cent. grade



Amid Majestic Surroundings on the Coast Range—Over this last divide the long journey reached its end

CROSS CONTINENT TOURING EASY

Recent Performances Indicate Journey Has Lost Its Terrors—McNamara Outlines Routes and Offers Suggestions.

During the heyday of the bicycle one of the English papers which desired to display its knowledge of American geography informed its readers that one of the New Yorkers' favorite Sunday runs was to Pike's Peak and back. The item was printed in all seriousness and for years stood as one of the classic "bulls," the memory of which has not been wholly effaced. Pike's Peak still remains some 2,000 miles distant from New York but, thanks to the motor car, the miles are very much shorter than they used to be. How greatly distance has been shortened was never better illustrated than by the manner and frequency with which motorists have made the 3,500 miles journey from ocean to ocean during the past year or two. Not so long ago it was considered in the nature of a feat worthy of being heralded far and wide; nowadays it is little more than an accomplishment or a vacation outing that excites only passing comment and except under unusual circumstances, as, for instance, the recent transcontinental tour, in which 12 carloads of motorists engaged, the journey is undertaken and accomplished without notice or any considerable flourish of trumpets. Thus, within recent weeks, C. A. Mulford and his mother, returning from a visit to Honolulu, made the overland journey to New York in a 50 horsepower Kissel car, and nothing was known of it until they reached home. Similarly, Mr. and Mrs. Frank Robertson, of Portland, Ore., leisurely and by a zigzag route, drove from that city to Maine, in a Pope-Hartford, and nothing was known of their 7,000 mile tour, until it was completed a few days ago. Another instance of unusual but unheralded ocean to ocean journey was that accomplished by a three-ton Packard truck, under the guiding hand of E. L. Burnett, which, following the northern route, and unknown to the general public, left New York on July 8 and reached San Francisco on August 24. Nothing was known of the undertaking until it had been accomplished.

That the transcontinental journey is not nearly so rigorous as is generally believed is the opinion of Ray McNamara, who piloted the Premier party, and who has traveled both of the routes from sea to sea and therefore knows them from intimate personal experience.

"In planning a cross-country trip one might choose any of several routes from New York to the Missouri river," he says. "From a scenic standpoint the route followed by the Premier ocean-to-ocean tourists in July is best. Through the Blue Ridge and Allegheny mountains of Mary-

land and Pennsylvania the route runs over the rolling hills of West Virginia and eastern Ohio, over good, level, straight roads in western Ohio to Indianapolis, then north to Chicago, west to Davenport, Iowa, then over the famous river-to-river road to Council Bluffs, Iowa, and Omaha, Nebraska. Or from Chicago, Omaha could be reached by a more direct route, going via Clinton and Marshalltown, Iowa.

"The roads across Pennsylvania are anything but ideal and I might say they are as bad or probably worse than any other transcontinental roads. However, this bad strip of roads can be avoided by following the route laid out by A. L. Westgard's transcontinental Premier last fall, going from New York up the Hudson to Albany, through the Mohawk Valley, Utica, Syracuse, Rochester, Buffalo, Erie, Cleveland, Columbus, Indianapolis and St. Louis. This route is free from long climbs on second speed and has very few 'thank-you ma'ams.' However, the most important thing is choosing your route west of the Missouri river.

"If one is going to rough it and enjoys camping and a few days away from civilization the Santa Fe is the route to follow. From Indianapolis to St. Louis and Kansas City, roads and accommodations are good. Leaving Kansas City, the old trail is picked up at Ottawa, Kansas, and from this point on the tourists have splendid hotel accommodations at each night's stop. The Harvey hotels are just far enough apart to make a good day's run and are located at Newton, Hutchinson, Dodge City and Syracuse, Kansas; Lajunta and Trinidad, Colorado, and Las Vegas and Albuquerque, New Mexico. Beyond Albuquerque a camping outfit is needed as no hotel accommodations can be had for several days. The worst sand of the trip is encountered a few miles west of Albuquerque. Sixty miles farther the railroad is left behind for a stretch of 500 miles. A lava bed is followed for 100 miles and the continental divide is crossed at 10,400 feet. Trails are hard to follow in many places and for quite a few miles it is necessary to travel by directions until Springerville is reached in Arizona.

"At Springerville tourists can stop at a boarding house and enjoy a night with the cow punchers. Leaving Springerville there is a twenty mile climb to the summit of the White Mountains. In November there is much snow on the summit for eight miles through the forest reservation, but when Cooley's Ranch is reached on the west side of the mountains the road conditions change for the better. The road would be fair in wet weather and good in dry weather. From Fort Apache to Globe, to Roosevelt Dam and to Phoenix, there are good government-built roads for the purpose of freightng supplies into the Fort from Globe and for hauling freight and building materials from Phoenix into the Salt River Valley and Roosevelt Dam country. From

Phoenix across the desert into Southern California traveling by motor car is easy except in a few places where it is necessary to run in the washes from the mountains. However, the roads are hard and good most of the way and after crossing the summit of the San Bernardino Mountains the roads are oiled and marked with signboards all the way to Los Angeles.

"On the central route hotel accommodations can be had all the way through; from Omaha to Denver the roads are good; from Denver to Forks Hotel and then through the foothills of the Rockies to Tie Siding and the Laramie plains in Wyoming, where the highest elevation, 8,000 feet, is reached, the conditions also are satisfactory. The trail from Laramie to Medicine Bow, Wyoming, is very good, but beyond this point the roads are somewhat bad up to Evanston, Wyoming, near the Utah line. From Evanston to Salt Lake City scenery and road conditions are fine.

"Probably the worst roads on the whole route are around the north end of the great Salt Lake. Most cross-country tourists ship across the lake, but this is not necessary. The run can be made by starting early, with easy driving through the washouts. Not one of our twelve Premiers had a flat tire on this day's run. From Ogden to Lucin, Utah; from Montello, Nevada, through Wells, Elko, Eureka, Ausin, and to Reno the roads are good except for a few alkali flats where the dust is very heavy. Hotel accommodations are good at any of these points. From Reno to Truckee, Lake Tahoe and the summit of the Sierra Nevada Mountains the scenery is beautiful and the roads are very good. They keep improving to Sacramento and Frisco.

"It would be hard to say which route is better from the Missouri river west. The old Santa Fe Trail is very interesting all the way, and from La Junta, Colorado, the Indian life begins. There are found adobe buildings and buildings of the mission style, good hotels and good roads to Albuquerque, New Mexico. From this point on it is necessary to camp out and this is certainly ideal country for camping. November nights are almost as light as day, due to a bright moon and the high elevation. There are clumps of cedars on New Mexico's mountains and deserts that make the finest camp fires. Nights are cool and days are very pleasant. Lava beds, extinct volcanoes, salt lakes, forest reservations, red buttes, land buttes, mesas, rocky canons, desert basins, deep arroyos, Indian reservations, giant cacti and a dozen other species are many of the interesting features that can be seen only along the old Santa Fe Trail. This route has one forty-five mile climb, about three twenty-mile climbs and many three mile climbs, but being so far south can probably be covered at any time of the year.

"The central route is more practical. It is free from long climbing on the low and

second speeds. The continental divide is crossed at 7,500 feet and the Sierra Nevada Mountains at 7,600 feet, but the highest elevation is reached at Tie Siding, Wyoming, which is on the plains 8,000 feet above sea level. The climb is so gradual over the Laramie plains that one does not realize the grade or the rarified atmosphere.

"The steepest grades are in the Sierras in Nevada but are easy to negotiate, so there is nothing to fear on this route, except the summer rains in Iowa, but the Sierra Nevada summit must be crossed before the middle of October to avoid the heavy snow storms, as winter sets in early up there and lasts a long time. Even in the first week of August we found a bank of snow several feet deep on the shady side of the mountains near the summit, the remains of last winter's snows.

"On the central route large cities and fine hotel accommodations can be figured on at the end of each week. For instance, Indianapolis was the first Sunday stop of the Premier ocean-to-ocean caravan, Omaha the next, Denver, Salt Lake City and San Francisco following in order.

"These accommodations can only be had up to Albuquerque, N. M., on the southern route. Then again it is necessary to roll boulders and build roads in spots on the Santa Fe Trail, while the central route can be traveled without block and tackle, shovel or any road building. From a scenic point of view the central route does not average up to the lower road. The first glimpse of the Rockies from the plains is quite inspiring, also the approach to the foothills and finally the crossing of the Great Divide. However, the tourist also gets all of this on the southern route.

"The ride through Echo Canyon, Utah, and the coast of twelve miles down Parley's Canyon from the summit of the Wasach Mountains into Salt Lake City, the novelty of crossing the alkali flats at speed, then the change from the desert into the Sierra Nevada Mountains is the grandest experience of the entire route and might be mentioned as the real wonder of the trip.

"It would be hard to make any distinctions, as both have their advantages and disadvantages. The Santa Fe Trail might be classed as the scenic route and the central as the more practical route. It would not cost a great deal of money to put both routes in fine shape. The land consists of material better than macadam for road surface, and it would only be necessary to grade the trails and put in a few bridges and sign boards. With this work completed hundreds of automobiles would make the trip each year. As it is the conditions are not bad and there is no reason why anybody should have any trouble in making the trip, providing reasonable time is taken and a good car is used.

"The trip can be made in from twenty to twenty-five days easily, taking a direct route from New York, or in thirty days taking time for detours."

HOW FRANCE REVISED RULE OF ROAD

Remodeled Law Does More Than Abolish Speed Limit and Change Direction—Some Other of Its Provisions.

While first reports regarding the new French rule of the road only cited the abolishment of the "30-kilometer-per-hour" clause and the change from right to left, to correspond with the British custom, later particulars make evident that the whole law relating to vehicular traffic has been remodeled in almost revolutionary manner. The most significant and important of the changes undoubtedly is the rule regarding pedestrians on public highways. While hitherto it has been held that pedestrians have certain inalienable rights on public roads, regardless of the fact that the central part of such highways from time immemorial has been used by vehicular traffic, it now is decreed by the French Minister of Public Works that automobiles and other vehicles have the absolute right of way on French highways, and that any pedestrian using the middle part of such highways to walk upon, does so at his own risk.

It furthermore has been decreed that henceforth the rule of the road will be the reverse of what has obtained heretofore; which is to say, vehicles will be driven along the left side of the road, will turn to the left when other vehicles approach from the opposite direction, and will pass on the right side of all slower moving vehicles going in the same direction. This rule is in force in Great Britain and the British colonies, and the sudden change in France is but one indication of the tendency of the rest of the world to adopt the same system. Several of the Federated States of the German Empire have had the system under consideration for some time, and it is believed that the whole Fatherland soon will endorse the British rule of road.

Another section of the new law places a curb on the careless driver of horse-drawn vehicles, who reclines at full length within his wagon or on the seat, leaving the reins tied to some part of the wagon and allowing the horse to pick its own way. Realizing the great danger of such carelessly handled vehicles to other traffic, the new law makes it compulsory on the part of the driver at all times to have the reins in the hands of a capable person. Furthermore, the law discourages the "road hog," in that it distinctly stipulates that each vehicle must allow passing vehicles no less than one-half of the road, and in any case must pull as far to the left as possible at the approach of other vehicles.

All roads and streets are divided into six classes, according to their importance, and all drivers must make sure that the way is clear for them before turning from their

own road into that of a more important class. Should the two cross roads be of the same respective class, the driver must keep to the left of the center of the road which he is entering.

Every vehicle, regardless of its manner of propulsion, must bear on its right side a metal plate, on which the owner's full name, profession and address are printed or legibly written.

All pedestrians must make way for all wheeled traffic of all kinds, while on the other hand drivers must give due warning of their approach.

Animals are not permitted at large on the highway, and if any automobile or vehicle should run over and kill or injure such animal, the owner will have no cause for damages. If large numbers of domestic animals are driven along public highways, they must be in charge of a sufficient number of competent persons who must manage them in such a way as not to take up more than one-half of the road width.

Simultaneously with making these important changes, the French authorities have come to the conclusion that the clause in their automobile law limiting the speed of automobiles on the open highways to thirty kilometers (19 miles) an hour, is a dead letter and never is enforced. The clause only works to the disadvantage of the community, in that it gives a driver a chance to dodge responsibility for accidents by proving that he drove within the legal speed limit. The new law abolishes a definite speed limit, but holds the driver strictly responsible for accidents caused by him, or for any damages inflicted to bridges, lamp posts, telegraph poles, or other structures connected with the highways.

Short Circuit Causes Chauffeur's Death.

Electrocuted, it is supposed, by a short-circuited power current, Samuel Parker, a Ludington (Mich.) chauffeur, met death in an almost unprecedented manner on the 14th inst., while repairing a car in a local garage. Parker used an extension light, which was led inside the chassis. In stepping into the machine a ground was established through his body and he received a shock from which he died soon after. A defective transformer is supposed to have caused the high-tension current to flow through the wire of the extension light, while the tires prevented it from grounding until other contact was established.

Owners Open Club to Chauffeurs.

Automobile owners of Santa Barbara, Cal., who some time ago organized the Santa Barbara Automobile Club, with Philip Rice, the millionaire planter and banker, as president, have decided to admit chauffeurs as active members. Two drivers already have been enrolled. This is the first club of the sort to announce publicly that its doors will be opened to professional chauffeurs.

TESLA POINTS WAY TO TURBINES

Famous Scientist Invents Radical Steam Engine With Gasolene Possibilities—
New Principle in Fluid Propulsion.

Safe to say, no form of engine could be more attractive either to motorist or automobile manufacturer than that which Dr. Nikola Tesla has evolved in applying his new method of fluid propulsion. A simple form of casing, hardly more complicated than the housing over an emery wheel, a rotating shaft, a number of plain circular disks equally spaced apart and fastened to the shaft and suitable arrangements for the

On the hypothesis that a practical form of gas engine ultimately may be developed it is apparent that space economy as well as high efficiency and low cost will be among its leading features.

In explaining the underlying method Tesla prefers to deal first with its application to pumping. The first authoritative description of the system, in which the Electrical Review quotes the inventor's own language, in part is as follows:

"In the practical application of mechanical power based on the use of a fluid as vehicle of energy it has been demonstrated that, in order to attain the highest economy, the changes in velocity and direction of movement of the fluid should be as gradual as possible. In the present form

hesion and viscosity. Owing to these a body propelled through such a medium encounters a peculiar impediment known as 'lateral,' or 'skin resistance,' which is twofold: one arising from the shock of the fluid against the asperities of the solid substance, the other from internal forces opposing molecular separation. As an inevitable consequence a certain amount of the fluid is dragged along by the moving body. Conversely, if the body be placed in a fluid in motion, for the same reasons, it is impelled in the direction of movement. The accompanying drawings illustrate operative and efficient embodiments of the idea.

"Fig. 1 is a partial end view, and Fig. 2 a vertical cross-section of a pump or compressor, while Figs. 3 and 4 represent, in corresponding views, a rotary engine or turbine, both machines being constructed and adapted to be operated in accordance with the invention.

"Figs. 1 and 2 show a runner composed of a plurality of flat rigid disks, 1, of a suitable diameter, keyed to a shaft, 2, and held in position by a threaded nut, 3, a shoulder, 4, and washers, 5, of the requisite thickness. Each disk has a number of central openings, 6, the solid portions between which form spokes, 7, preferably curved, as shown, for the purpose of reducing the loss of energy due to the impact of the fluid.

"This runner is mounted in a two-part volute casing, 8, having stuffing boxes, 9, and inlets, 10, leading to its central portion. In addition a gradually widening and rounding outlet, 11, is provided formed with a flange for connection to a pipe as usual. The casing, 8, rests upon a base, 12, shown only in part and supporting the bearings for the shaft, 2, which, being of ordinary construction, are omitted from the drawings.

"An understanding of the principle embodied in this apparatus will be gained from the following description of its mode of operation.

"Power being applied to the shaft and the runner set in rotation in the direction of the solid arrow, the fluid, by reason of its properties of adherence and viscosity, upon entering through the inlets, 10, and coming in contact with the disks, 1, is taken hold of by the same and subjected to two forces, one acting tangentially in the direction of rotation, and the other radially outward. The combined effect of these tangential and centrifugal forces is to propel the fluid with continuously increasing velocity in a spiral path until it reaches the outlet, 11, from which it is ejected. This spiral movement, free and undisturbed and essentially dependent on these properties of the fluid, permitting it to adjust itself to natural paths or stream lines and to change its velocity and direction by insensible degrees, is characteristic of this method of propulsion and advantageous in its application.

"It may also be pointed out that such a

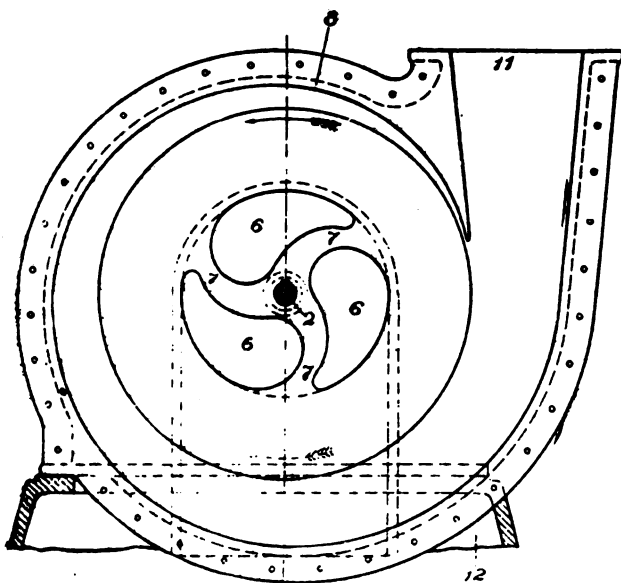


FIG. 1

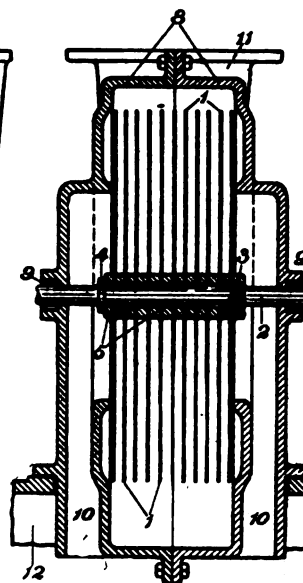


FIG. 2

admission of the working fluid and release of the waste products—these few elements constitute the sole requisites of a complete and efficient engine, if the Serbian-American scientist is correct in his reasoning. That there is nothing in the underlying principle to qualify the new form of engine more particularly for steam than for gas and that early tests have shown enormous power to be derivable from very small units lends strength to predictions that the Tesla system ultimately may exert a revolutionizing influence on the automobile industry.

So new is the invention that it is impossible to determine what are the limitations of the system nor in exactly what manner it will prove applicable. Tesla himself is authority for the statement that the action will be essentially the same whether the pressure of the working fluid be constant, fluctuating or intermittent; the latter condition being such as might obtain were the system applied to the internal combustion engine. One of the experimental steam engines, having disks, or blades, $9\frac{3}{4}$ inches in diameter and occupying a lateral space of two inches has developed 110 horsepower, as told by the Motor World last week.

of such apparatus more or less sudden changes, shocks and vibrations are unavoidable. Besides, the employment of the usual devices for imparting to, or deriving energy from a fluid, as pistons, paddles, vanes and blades, necessarily introduces numerous defects and limitations and adds to the complication, cost of production and maintenance of the machine.

"The purpose of the invention is to overcome these deficiencies and to effect the transmission and transformation of mechanical energy through the agency of fluids in a more perfect manner, and by means simpler and more economical than those heretofore employed.

"This is accomplished by causing the propelled or propelling fluid to move in natural paths or stream lines of least resistance, free from constraint and disturbance such as is occasioned by vanes or kindred devices, and to change its velocity and direction of movement by imperceptible degrees, thus avoiding the losses due to sudden variations while the fluid is receiving or imparting energy.

"It is well known that a fluid possesses among others two salient properties: ad-

pump can be made without openings and spokes in the runner, as by using one or more solid disks, each in its own casing, in which form the machine will be eminently adapted for sewage, dredging and the like, when the water is charged with foreign bodies and spokes or vanes are especially objectionable.

"Another application of this principle, thoroughly practicable and efficient, is the utilization of machines such as described for the compression or rarefaction of air, or gases in general. In such cases most of the general considerations obtaining in the case of liquids, properly interpreted, hold true.

"When, irrespective of the character of the fluid, considerable pressures are de-

path of the particles will be comparatively long, consisting of many almost circular turns. If the load is put on and the runner slowed down, the motion of the fluid is retarded, the turns are reduced, and the path is shortened. . . .

"When apparatus of the kind described is employed for the transmission of power, certain departures from similarity between transmitter and receiver may be necessary for securing the best result. It is evident that, when transmitting power from one shaft to another by such machines, any desired ratio between the speeds of rotation may be obtained by proper selection of the diameters of the disks, or by suitably staging the transmitter, the receiver, or both. But it may be pointed out that in one

shown, and are separated by washers, 17, conforming in shape with the spokes and firmly united thereto by rivets, 18. For the sake of clearness but a few disks, with comparatively wide intervening spaces, are indicated.

"The runner is mounted in a casing comprising two end-castings, 19, with outlets, 20, and stuffing boxes, 21, and a central ring, 22, which is bored out to a circle of a diameter slightly larger than that of the disks, and has flanged extensions, 23, and inlets, 24, into which finished ports, or nozzles, 25, are inserted. Circular grooves, 26, and labyrinth packings, 27, are provided on the sides of the runner. Supply pipes, 28, with valves, 29, are connected to the flanged extensions of the central ring, one of the valves being normally closed.

"With the exception of certain particulars, which will be elucidated, the mode of operation will be understood from the preceding description. Steam or gas under pressure being allowed to pass through the valve at the side of the solid arrow, the runner is set in rotation clockwise direction.

"In order to bring out a distinctive feature assume, in the first place, that the motive medium is admitted to the disk chamber through a port, that is, a channel which it traverses with nearly uniform velocity. In this case, the machine will operate as a rotary engine, the fluid continuously expanding on its tortuous path to the central outlet. The expansion takes place chiefly along the spiral path, for the spread inward is opposed by the centrifugal force due to the velocity of the whirl and by the great resistance to radial exhaust. It is to be observed that the resistance to the passage of the fluid between the plates is approximately proportional to the square of the relative speed, which is maximum in the direction towards the center and equal to the full tangential velocity of the fluid. The path of least resistance, necessarily taken in obedience to a universal law of motion, is virtually also that of least relative velocity.

"Next assume that the fluid is admitted to the disk chamber not through a port, but a diverging nozzle, a device converting, wholly or in part, the expansive energy into velocity-energy. The machine will then work rather like a turbine, absorbing the energy of kinetic momentum of the particles as they whirl, with continuously decreasing speed, to the exhaust. . . .

"In the preceding it has been assumed that the pressure of supply is constant or continuous, but it will be understood that the operation will be, essentially, the same if the pressure be fluctuating or intermittent, as that due to explosions occurring in more or less rapid succession.

"A very desirable feature, characteristic of machines constructed and operated in accordance with this invention, is their capability of reversal of rotation. Fig. 2, while illustrative of a special case, may be

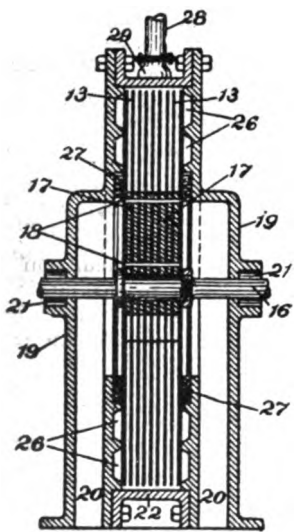


FIG. 3

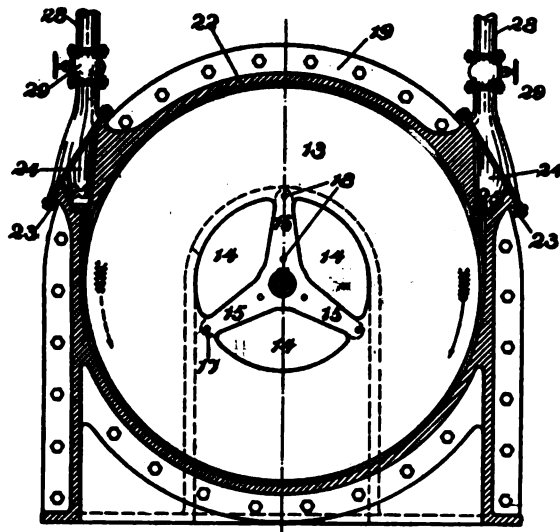


FIG. 4

sired, staging or compounding may be resorted to in the usual way, the individual runners being, preferably, mounted on the same shaft. It should be added that the same end may be attained with one single runner by suitable deflection of the fluid through rotative or stationary passages.

"The principles underlying the invention are capable of embodiment also in that field of mechanical engineering which is concerned in the use of fluids as motive agents, for while in some respects the actions in the latter case are directly opposite to those met with in the propulsion of fluids, the fundamental laws applicable in the two cases are the same. In other words, the operation above described is reversible, for if water or air under pressure be admitted to the opening, 11, the runner is set in rotation in the direction of the dotted arrow by reason of the peculiar properties of the fluid which, traveling in a spiral path and with continuously diminishing velocity, reaches the orifices 6 and 10 through which it is discharged. If the runner be allowed to turn freely, in nearly frictionless bearings, its rim will attain a speed closely approximating the maximum of that of the fluid in the volute channel and the spiral

respect, at least, the two machines are essentially different. In the pump, the radial or static pressure, due to centrifugal force, is added to the tangential or dynamic, thus increasing the effective head and assisting in the expulsion of the fluid. In the motor, on the contrary, the first named pressure, being opposed to that of supply, reduces the effective head and the velocity of radial flow towards the center. Again, in the propelled machine a great torque is always desirable, this calling for an increased number of disks and smaller distance of separation, while in the propelling machine, for numerous economic reasons, the rotary effort should be the smallest and the speed the greatest practicable. . . .

"The greatest value of this invention will be found in its use for the thermodynamic conversion of energy. Reference is now made to Figs. 3 and 4, illustrative of the manner in which it is, or may be, so applied.

"As in the previous figures, a runner is provided made up of disks, 13, with openings, 14, and spokes, 15, which, in this case, may be straight. The disks are keyed to and held in position on a shaft, 16, mounted to turn freely in suitable bearings not

regarded as typical in this respect. If the right hand valve be shut off and the fluid supplied through the second pipe, the runner is rotated in the direction of the dotted arrow, the operation, and also the performance, remaining the same as before, the central ring being bored to a circle with this purpose in view. The same result may be obtained in many other ways by specially designed valves, ports or nozzles for reversing the flow, the description of which is omitted here in the interest of simplicity and clearness. . . .

"Still another valuable and probably unique quality of such motors or prime movers may be described. By proper construction and observance of working conditions the centrifugal pressure, opposing the passage of the fluid, may, as already indicated, be made nearly equal to the pressure of supply when the machine is running idle. If the inlet section be large, small changes in the speed of revolution will produce great differences of flow which are further enhanced by the concomitant variations in the length of the spiral path. A self-regulating machine is thus obtained bearing a striking resemblance to a direct-current electric motor in this respect, that, with great differences of impulsive pressure in a wide open channel, the flow of the fluid through the same is prevented by virtue of rotation. . . .

"Besides these, such a prime mover possesses other advantages, both constructive and operative. It is simple, light and compact, subject to but little wear, cheap and exceptionally easy to manufacture, as small clearances and accurate milling work are not essential to good performance. In operation it is reliable, there being no valves, sliding contacts or troublesome vanes. It is almost free of windage, largely independent of nozzle efficiency and suitable for high as well as for low fluid velocities and speeds of revolution. The principles of construction and operation are capable of embodiment in machines of the most widely different forms, and adapted for the greatest variety of purposes."

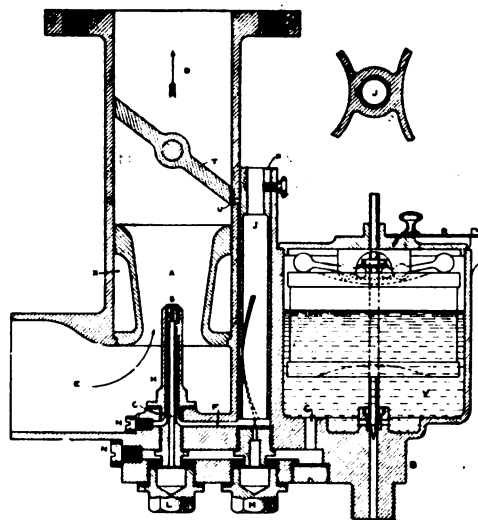
French Exports Maintain Their Strength.

Despite the stress of competition, France's export trade is maintaining its remarkable strength. For the seven months ending with July, its foreign business in cars and parts attained a value of \$20,600,000, as against 20,229,000 for the corresponding period of 1910. Great Britain, which is by far the largest customer, has slightly reduced its purchases, but increases are shown in the shipments to Algeria, Brazil, Germany, the Argentine, Austria and Turkey. On the other hand, smaller shipments have been made to Belgium, Russia, Italy, Switzerland, Spain and the United States. The imports of foreign motor-cars and parts into France have advanced also—from \$983,800 in the first seven months of 1910, to \$1,672,200 in the corresponding period of the current year.

LEAK PRINCIPLE IN CARBURETTER

American-Made Zenith Turns Simple Idea to Good Advantage—Regulates Flow of Fuel Instead of Air.

A leak in a bucket is recognized as producing a stated loss of the contents in any given time, or, in other words, a constant rate of flow. On this principle the Zenith carburetter is provided with a compensating device in which the fuel supply is regulated in proportion to the speed, instead of the air, as more commonly is the case. In introducing the principle in this country the recently organized Zenith Carburetter Co., of Detroit, Mich., has undertaken to reproduce by American manufacturing methods a device which in something over



THE AMERICAN ZENITH CARBURETTER

four years of existence in Europe has more than given a good account of itself, now being made both in France, where it originated, and in England.

The ordinary plain carburetter jet, which in the Zenith construction is placed at C, as shown by the accompany illustration, has the fault of delivering increasingly rich mixtures as engine speeds increase. To correct this defect the principle of the leaking bucket is employed. A second jet which is just above the plug marked in the drawing, permits a constant flow of fuel to take place from the duct which leads from the float chamber and to discharge into the base of the well, J, which is open to the atmosphere at the top. This corresponds to the "leak" above mentioned, and results in the contribution of small additional quantities of fuel to the mixing chamber, A, through the passage, F, and the annular space, H, which surrounds the main jet and leads to a circular opening at the nozzle, S.

When the engine is at rest, the flow through the fixed opening continues until the level of fuel in the well, J, reaches the

height of that in the float chamber. When the engine is started the suction in the mixing chamber causes the contents of the well to be discharged through the jet, thus affording a rich starting mixture, but one which "thins out" as speeds increase, because the free air supply in the well prevents the suction from affecting the flow through the supplementary orifice. A mixture which is said to be of remarkable consistency is the result.

As the level of the fuel is considerably below the nozzle in the standpipe a feeding device also is added to assist in starting without priming and also to serve when the motor is turning over idly at very low speed. With this object the wall of the intake pipe is drilled with a small hole, U, which comes just under the edge of the throttle, T, when the latter is in its closed position. Communicating with this hole is a groove in the wall of the well, which, by the insertion of a tube, K, in the well, is formed into a closed tube. A spiral slot in the tube registers at some point with the slot; the rotation of the tube, after releasing an adjusting screw, serving to locate the height of the opening from the well to the slot which thus is formed. This tiny passage leading directly to the intake pipe permits small quantities of fuel to be fed to the cylinders when the well is filled and when the suction is insufficient to cause the main jet to operate.

Interchangeable nozzles are provided so that the carburetter may be adapted to any engine. Once adjusted in the proper way it has the merit of possessing but one moving part outside the float chamber—that being the throttle itself.

Why Tire Chains Should Be Whole.

Full dependence may be placed on chains as devices competent to prevent skidding only when the chains are perfect; which is to say that if one or more cross chains is missing the efficiency of the whole is decreased far out of proportion to the loss of even a single cross chain. This is due to the fact that when the brakes are applied the chains will hold the car until that spot is reached where there is no chain. When the tire will come on contact with the road and a skid will be imminent. As new cross chains are cheap and their application is simple, the efficiency of the non-skid devices may be insured at all times by the expenditure of a minimum of money and time.

Foot Pedals as Cause of Rattling.

One of the most annoying sources of rattles, which contrary to the usual rule generally is easy to locate, may be caused by the foot pedals where they extend through the floorboard. Sometimes the noise may be stopped by tightening the pedals on their shafts, but where they already are tight practically the only remedy which remains is to enlarge the slots, though the pedals sometimes may be taped.

USES SPENT GAS TO START ENGINE

Everitt Self-Starter Employs Novel But Proven Principle—How it is Applied and How It Operates.

Operating on a principle not far removed from that on which a steam engine operates, steam being a compressible gas, which, being admitted by suitable valves behind the pistons causes them to move, the self-starting device with which the 1912 Everitt four and six-cylinder engines are equipped is best described as being of the compressed gas type. The difference, however, is that the agent used in the Everitt

or "distributor," which operates much in the manner of a timer and like one is actuated by the camshaft. As the crankshaft revolves, the distributor exposes in turn four openings for the four-cylinder motor and six for the six-cylinder motor, the openings being connected to small copper pipes leading to the cylinders. The timing is so arranged that the gas is admitted first to the cylinder in which the piston is at the top of its stroke, and following this to the other cylinders as the pistons rise and pass top dead center.

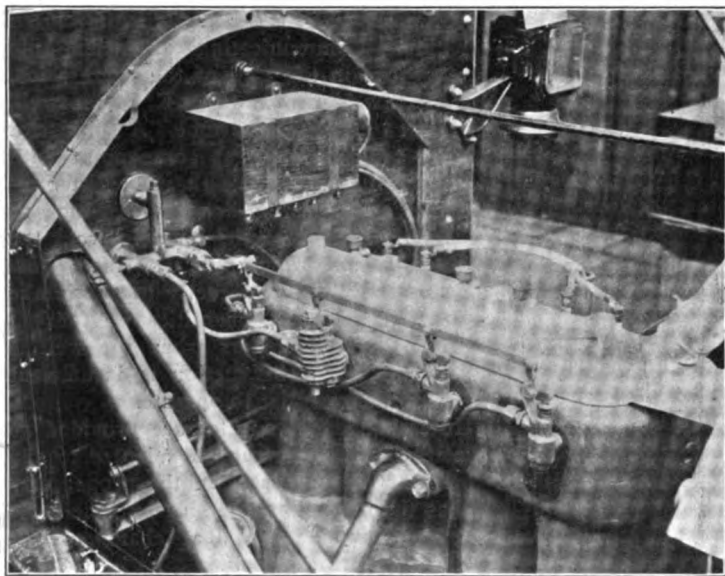
In operation, the distributor valve rotating in unison with the camshaft necessarily stops in such a position that the opening leading into the cylinder in which the piston is nearest its top center with the

over about 100 times, the pressure being automatically maintained once the engine has started.

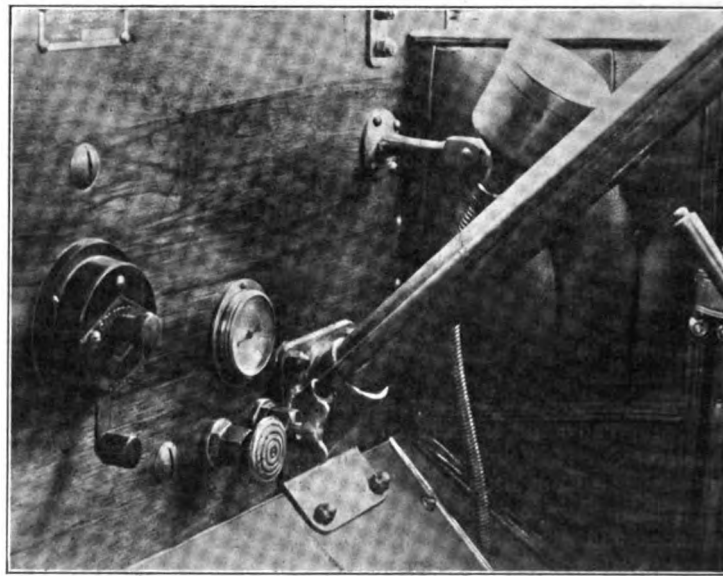
Motor Cars Conspicuous at Michigan Fair.

By far the largest and most notable display of automobiles ever held in connection with a state fair was inaugurated on Monday, 18th inst., at Detroit, Mich., where the annual Michigan State Fair is holding sway this week. The great majority of the cars exhibited were 1912 models, while a surprisingly large number of trucks served to attract the attention of the business man. Every foot of space in Motor Hall is filled by the 50-odd exhibitors, who are staging the following cars:

Gasolene pleasure cars—Abbott-Detroit,



SIMPLICITY OF EVERITT ENGINE STARTING DEVICE



ARRANGEMENT OF OPERATING BUTTON AND PRESSURE GAUGE

starter is spent or burned gas and in making use of it a hitherto unused source of power is utilized without affecting the efficiency of the engine.

Situated just above top dead center of the pistons, a check valve arranged on the third cylinder of four cylinder motors and on the fifth cylinder of the "sixes," permits a small portion of the burned gas to pass through a pipe into a steel cylinder where it is stored. As the check is so adjusted that the ordinary compression in the cylinder is not sufficient to force gas past it unless the pressure has been materially increased as is the case when the charge in the cylinder is fired, there is no possibility of "live" gas gaining entrance to the reservoir. Hence it is only burned or used gas which is utilized and as the quantity taken from each explosion, though very small in any case, is reduced as the tank becomes charged and none is taken after about 10 minutes running when the tank has become full, the effect on the efficiency of the engine is nil.

The compressed gas in the tank is admitted to the cylinders in turn by means of suitably placed pipes and a rotating valve

engine valves closed, is uncovered. Then when the compressed gas is released through the distributor valve, by means of a small foot pedal, the piston is forced down and gas is admitted to the next cylinder, the operation being repeated until the engine takes up its own cycle of operations and commences to fire. To preclude the possibility of the gas escaping while the car is standing idle for long periods, a needle valve on the dash permits the tank to be shut off; a pressure gauge, also on the dash indicates the amount of pressure available at all times.

On the six-cylinder engines, owing to their design, one piston always being in the proper position, the self-starter is infallible. With the four-cylinder engine, however, the possibility of the engine stopping on "dead center" cannot be denied though the likelihood of this occurrence is remote owing to the fact that the compression tends to cause the pistons to rock slightly before finally coming to rest when they almost invariably assume a balanced position half way down the cylinders. The tank in which the compressed gas is stored is of sufficient capacity to turn the engine

Brush, Buick, Cadillac, Cartecar, Chalmers, Cole, Columbia, Cunningham, Cutting, Elmore, Everitt, E-M-F, Flanders, Hudson, Hupmobile, Imperial, Jackson, Lion, Maxwell, Mitchell-Lewis, Oakland, Overland, Patterson, Regal, Stoddard - Dayton, Thomas, White.

Electrics—Anderson, Colonial, Flanders.

Commercial cars—Commerce, Day Utility, Detroit Motor Wagon, Poss, Rapid, Seitz, Pratt-Carter-Sigsbee.

Cole Engine-Starter Almost Ready.

Continuing its experiments with engine-starting devices for Cole cars, the Henderson Motor Sales Co., of Indianapolis, Ind., has announced that a system is being developed which is so constituted that it can be applied to any of the cars, and which it is hoped will be ready for introduction within a short time. The new system is not electrical, it is explained, for which reason, cars that are to be equipped with electric lights will have storage battery outfits. Beyond the statement that the starting outfit will be neither expensive nor difficult to instal the details of its construction are not disclosed.

Developments and Trends in Engine Design

That modern automobile engines show a distinct degree of similarity when viewed in the concrete has on more than one occasion been the cause of comment. Even the sameness of details has been remarked, but whereas the general similarity of engine design does exist, and is legitimate in view of the fact that all four-cycle engines operate on the same principle and therefore require practically the same relative arrangement of parts, the approximation to the average in uniformity of details is not nearly as marked at present as was the

also are cored in, giving the engine the appearance of an oblong box.

From the engineering point of view, the system of casting cylinders en bloc has many advantages. Primarily it permits of more rigid construction and therefore there is less liability of frame distortion affecting wear on bearings. Manufacturing cost, too, is reduced, as manifestly it is cheaper to make and mount a single casting than it is to cast several separately and assemble them on a common bed. From the user's point of view, as may be

side. The intake passages are cored through to the valves which thereby are made more accessible, owing to the absence of the carburetter and intake manifolds, which generally are placed in front of the valves. An entirely different arrangement of cored intake passages is shown on the Stearns 15-30 horsepower engine illustrated in Fig. 9. Though the carburetter is mounted on the same side as the valves, the intake manifold is eliminated by attaching the carburetter directly to the block cylinder casting.

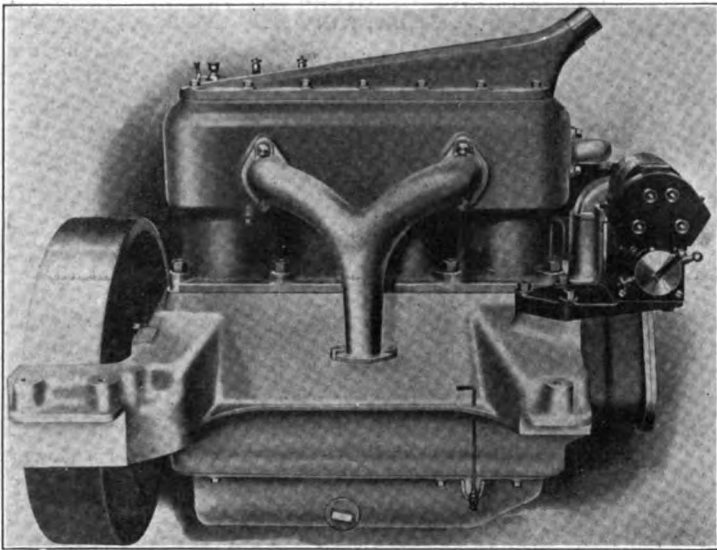


FIG. 1—HUDSON BLOCK CYLINDER CASTING

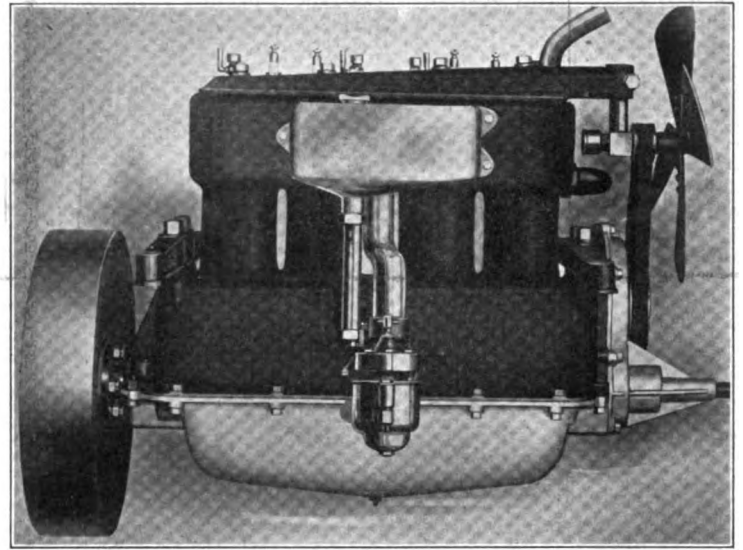


FIG. 2—EVERITT INTEGRAL CYLINDERS AND CRANK CASE

case a few years ago. Though the advances which engineering practice has made in the use of better materials scarcely are apparent to the eye, the tendencies toward lighter construction embodying a greater degree of strength, the reduction of wear and the protection of component parts are self-evident.

Probably the most noticeable change in general design is the growing trend toward the casting of cylinders either in single block or in blocks of two or three cylinders. While the method is not new in the sense that it has only just made its appearance, having been in vogue for several years both in this country and abroad, it is only recently that its merits have been widely recognized. Indicative of the favor which the method has obtained it is noteworthy that today there are more manufacturers using block cylinder castings than ever before. The possibilities of the system are indicated by several foreign manufacturers who have embodied six cylinders in a single casting, and in some cases the gas and water passages

seen in the accompanying illustrations, Figs. 1 and 2, the block casting provides an unusually smooth exterior which is easily kept clean, and as dirt is the foe of efficiency, the advantage in this respect is undisputed.

Though in both of the engines illustrated in Figs. 1 and 2, the former being the Hudson and the latter the Everitt "30," the cylinders are cast en bloc, the Hudson cylinders alone form a unit, whereas the Everitt casting, which is unusual, also includes the top half of the crank case and therefore provides even more rigid construction than when the cylinders alone are cast together and afterward bolted down to a bed formed of the top half of the crank case.

Providing an even smoother exterior, the practice of including intake and exhaust passages in the casting—of coring them integral—also is increasing. In both the Hudson and Everitt engines, which are of the L-head type, the intake manifold and the carburetter are placed on the right side and the exhaust manifold is on the opposite

Though it has been suggested that the enclosing of gas passages gains compactness and permits a minimum of outside parts at the expense of efficiency, it has yet to be proven that such is the case. Passages are made large enough and straight enough to preclude the possibility of choking, and the success with which the system has met sets at naught such contentions.

Regarding valve location, the tendency toward the L-head motor is more marked than ever before, the location of the valves all on one side being admirably suited to the block method of casting cylinders. While considerable has been said concerning the better thermal efficiency of engines having only one valve pocket to each cylinder, the real reason for the change most likely is to be found in the fact that one method requires one cam shaft and the other requires two. Naturally the extra cam shaft entails increased manufacturing cost and at the same time its driving gears are likely to increase noise.

Another evident reason for locating the

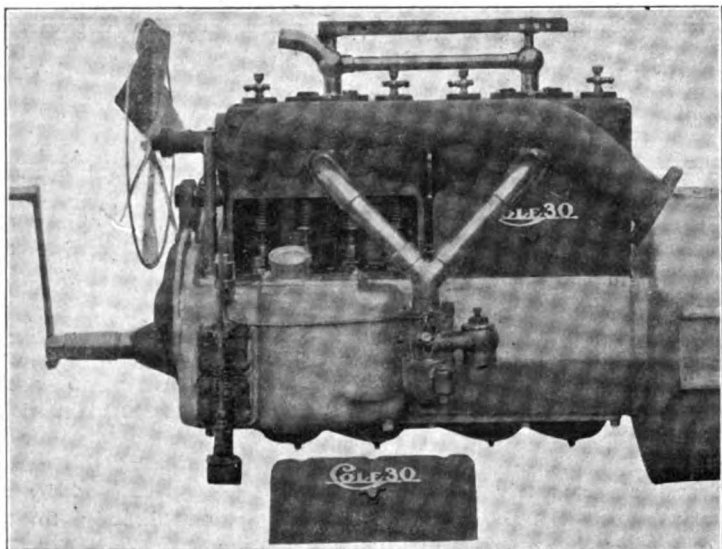


FIG. 3—COLE "30" PRACTICE IN ENCLOSING VALVE STEMS

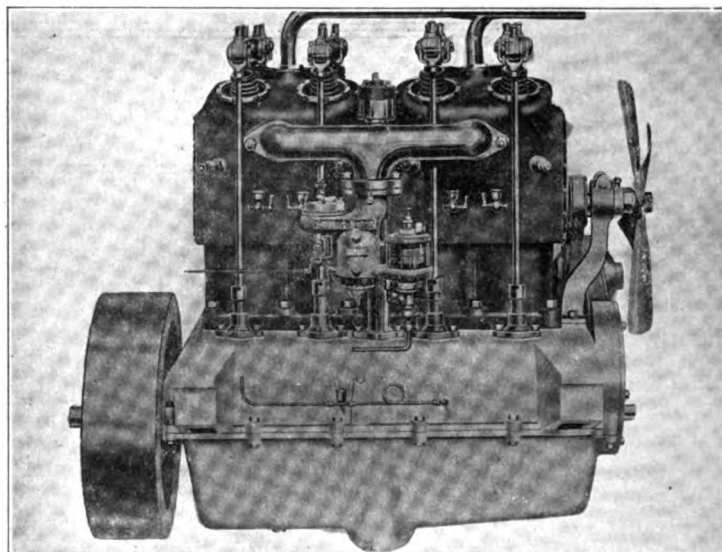


FIG. 4—ACCESSIBILITY OF OVERHEAD VALVES—STODDARD-DAYTON

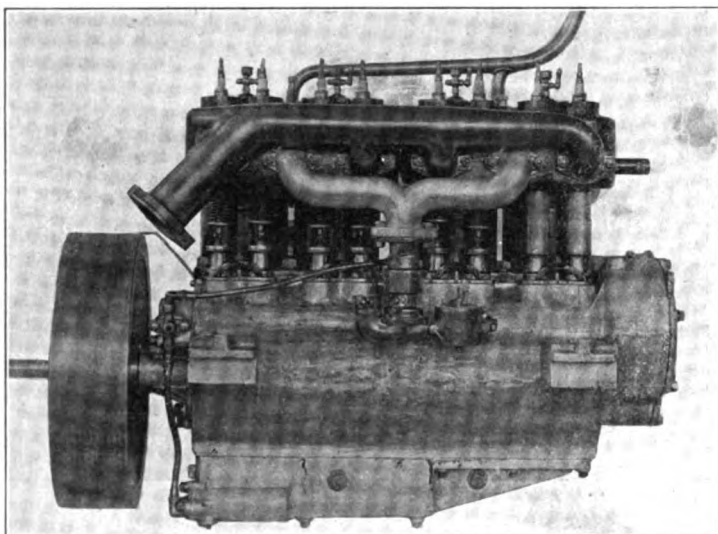


FIG. 5—VALVE STEMS ENCLOSED IN SLEEVES—THE CHALMERS "40"

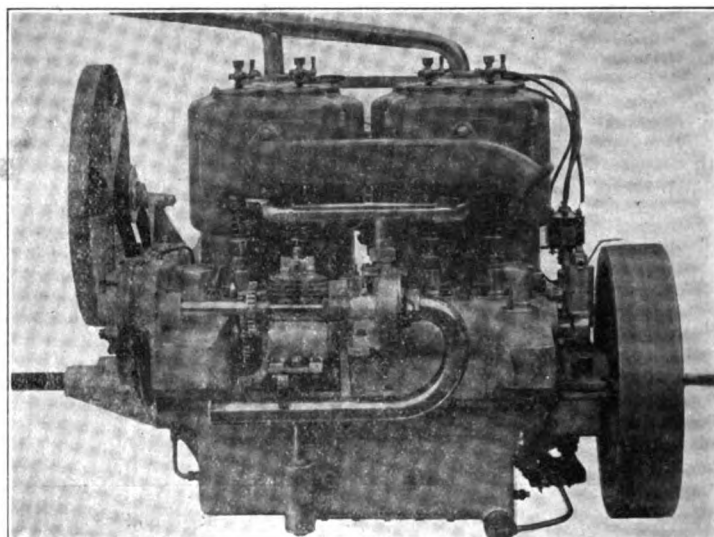


FIG. 6—CAM SHAFT DRIVEN TIRE PUMP ON COLUMBIA ENGINES

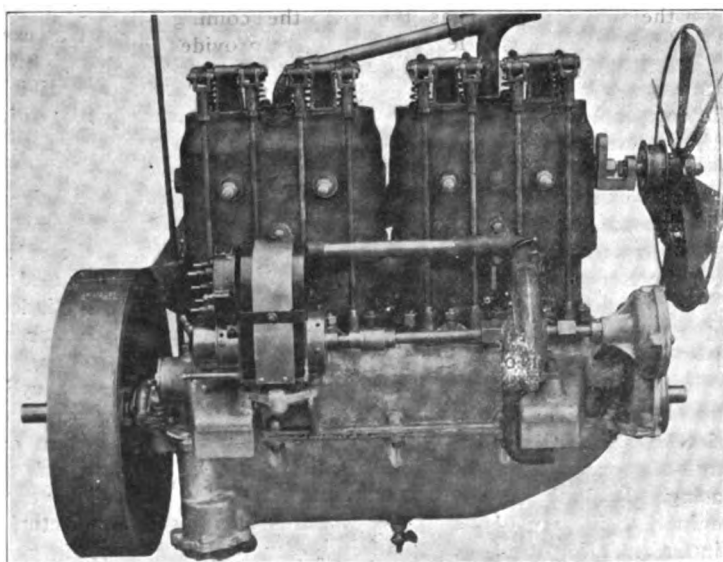


FIG. 7—OVERHEAD VALVES WITH SINGLE CAM SHAFT—THE PARRY

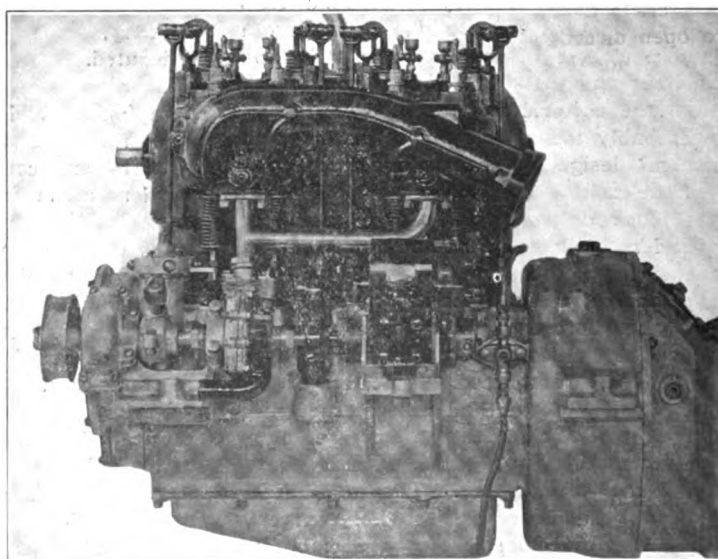


FIG. 8—CHALMERS L-HEAD CYLINDERS AND OVERHEAD INTAKES

valves all on one side is the case with which the valve stems and push rods may be entirely enclosed and therefore protected, while at the same time even the little noise which may emanate from them is reduced to the smallest possible degree. The favorite manner of enclosing the valve stems is by means of a detachable plate held in place by a thumb screw as shown on the Cole engine, illustrated in Fig. 3. With slight modifications, the same method is used by a number of other manufacturers, and according to present indications the number will be still larger for the coming season. An alternate method consists in enclosing the valve stems and push rods in two brass sleeves which, when extended, form separate housings for each valve stem, and when telescoped leave the stems easily accessible. This method is illustrated on the Chalmers "40" engine, shown in Fig. 5, and has come into very wide use among other manufacturers within the past year.

For the larger sized motors, separately cast cylinders of the T-head or valve-in-the-head type are largely in favor, en bloc casting being confined principally to the lighter power engines, though there are several excellent examples of block casting in the larger sized engines as well. Of the two types of motor, T-head and valve-in-the-head, the former is the more numerous, probably because of the fact that manufacturing cost may be made slightly lower with this construction.

The T-head arrangement has the advantage that fewer moving valve parts are required and also that more direct connection with the cam shafts is possible. Also it is claimed by advocates of the T-head arrangement that the degree of silence which is obtainable with this construction is greater than can be obtained with overhead valves. On the score of silence alone, however, neither has the advantage, as is evidenced in the late types of valve-in-the-head motors which are second to none as regards silence of operation.

Overhead valves generally are arranged to open directly into the cylinders from a vertical position on top, as shown in Fig. 11, illustrative of Knox construction, or are arranged at an angle of 45 degrees, when they take their name from their angle of inclination and are styled 45 degree valves. Such an arrangement, used on Jackson cars, is shown in Fig. 10. As may be seen from these two illustrations, the overhead arrangement provides an unusually clear compression space devoid of pockets, which in itself is an advantage, inasmuch as the efficiency of an engine depends largely on the unobstructed passage of the gases, whether fresh or burned.

On this score alone, however, overhead valves are little in advance of the T-head arrangement, owing to the degree of perfection which the T-head motor has attained in the last few years. But as regards accessibility, the overhead arrangement is ahead of the other, as the valves

are on top and may be easily and quickly removed, generally without the necessity for special tools, such as valve lifters. In the Jackson arrangement, and in a number of others which are quite similar, the valves are carried in cages, and valve and seat may be removed at once for regrinding or replacement. While the Knox arrangement (Fig. 10) requires the removal of the cylinder heads to get at the valves, the operation is comparatively simple and results in more of an advantage than a disadvantage, as the combustion space is made readily accessible for the removal of carbon deposit.

There are two general methods of operating overhead valves, viz., by means of a

satisfactory for several years. A single camshaft serves to operate both sets of valves.

As a further indication of the development of modern engines, the mounting of auxiliary apparatus is receiving greater attention than ever before. Whereas a few years ago manufacturers confined themselves to providing a bracket for a magneto, which in many cases was not supplied with the engine, today brackets are supplied and provision made for the driving of tire pumps and lighting dynamos as well, and in some cases these fixtures, as well as engine starters, are included in the purchase price.

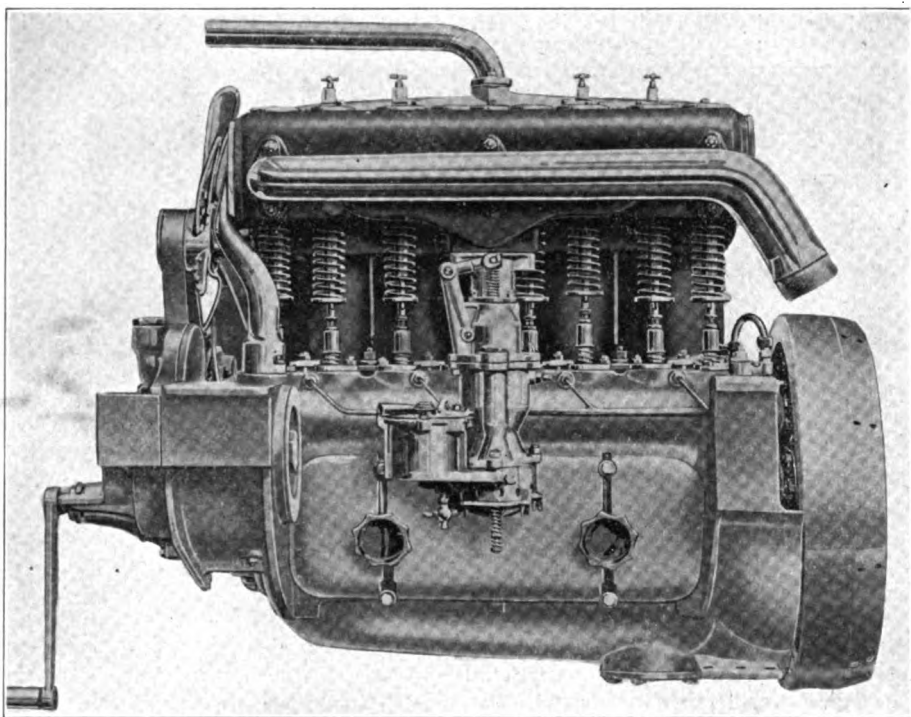


FIG. 9—A BLOCK MOTOR WITH CORED INTAKE PASSAGE—THE STEARNS "15-30"

single cam shaft, or by means of two separate cam shafts, the movement in either case being transmitted to the valve stems by suitably placed rocker arms. On Stoddard-Dayton poppet valve engines, the overhead valves are actuated by means of separate cam shafts, as shown in Fig. 4, one for the intake valves and the other for the exhaust valves. In the Parry engine, which is illustrated in Fig. 7, a single camshaft serves to operate both sets of valves.

The arrangement of a single camshaft on top of the engine and between the overhead valves is rare and is used only on a few engines. The arrangement is good, however, as it permits of the advantages of overhead valves while at the same time the whole valve mechanism may be enclosed quite easily, a feature which at least one manufacturer has incorporated. The Chalmers "30" motor, illustrated in Fig. 8 embodies a combination of L-head cylinders with the exhaust valves at the side and overhead intake valves, an arrangement which has proven eminently

Several engines hitherto without such fixtures will have starters of the exhaust gas type for the coming season, and at least one of them provides for the inflation of tires from the same tank of compressed gas or air by means of which the engine is started. Others embody separate tire pumps, actuated either from the camshaft, as in the Columbia engine shown in Fig. 6, or from a shaft in the change gear set, or from the engine flywheel by friction. Similarly, by an ingenious arrangement of automatic switches, lighting dynamos which in addition to furnishing current for ignition purposes, also serve as engine starters, will be used on several cars.

Another of the equally noticeable tendencies in engine design is toward increasing the stroke-bore ratio. "Square" motors, in which the bore and stroke are the same, fast are disappearing, and in their place there are long stroke motors. Some of them it is true are long stroke in name only, having strokes only a fraction of an inch greater than their bores, but the gen-

eral tendency is toward the real long stroke motor. One of the more prominent manufacturers has announced a motor with a bore of five inches and a stroke of seven inches for the coming season, and many others will have engines in which the stroke-bore ratio is very nearly the same.

Also the six-cylinder engine is very much more in evidence now than heretofore; several manufacturers of moderate priced cars, whose output in past years has not included "sixes," have announced them for the coming year, and it is reasonably certain that others presently will include six-cylinder cars in their lines. The most probable reason for the increased popularity of the "six" is the greater smoothness of operation and flexibility which it provides. In-

have to grapple is the elimination of vibration.

Open Throttle for Braking With Engine.

When the engine is used "dead" as a brake the throttle should be opened to its fullest limit, as the maximum amount of gas then is drawn into the cylinders and consequently the maximum compression and retarding effect is obtained. When the throttle is partly closed the suction of the pistons results in a partial vacuum in the cylinders and as there is less work for the engine to do in compressing the smaller charge the retarding effect is correspondingly decreased. Obviously if the throttle is kept wide open the consumption of gasoline will be increased; therefore it is well

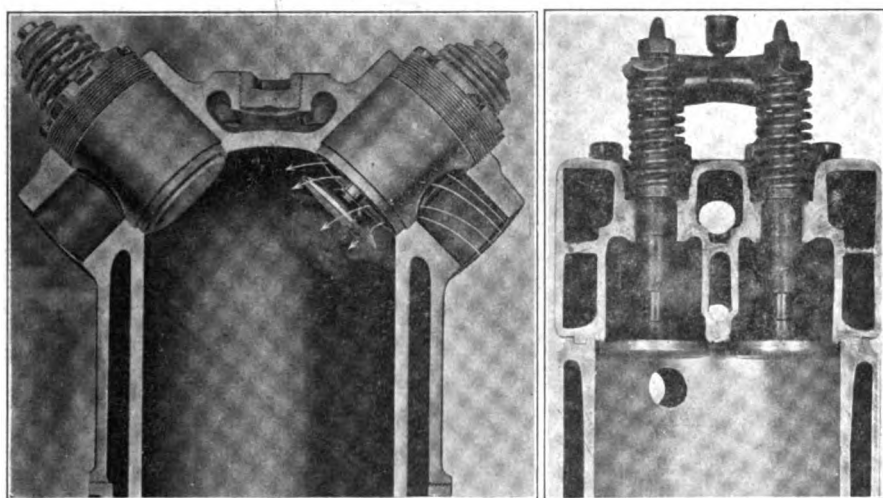
if the engine is "turned over" slowly by hand. As the irregular running of an engine causes undue and excessive wear on bearings, and incidentally on tires, it is well to take pains to see that the compression in all cylinders is the same. Generally the trouble is caused by leaky valves, in which case they should be reground. If after such treatment the irregularity continues, and provided spark plugs are gas tight, the piston rings should be examined. Breakage of the rings is the least frequent cause of trouble, which generally may be traced to an accumulation of oil which prevents the rings from spreading and touching the cylinder walls. A liberal dose of kerosene injected through the spark plug openings and allowed to remain over night generally is sufficient to loosen the tightest rings.

Restoring Rubber That Has Hardened.

That tires or other rubber articles which have become slightly hardened through exposure to the atmosphere may in some cases be restored to their original state of elasticity by the simple expedient of immersing them for a short time in an alkaline solution composed of one part ammonia to two parts of water, is the experience of a writer in the *Pharmaceutical Journal*. The article which was tested was an old bicycle tube which seemed beyond restoration yet half an hour's immersion in such a solution sufficed to render it fit for use. The theory of the system is that the alkaline solution neutralizes the tendency toward the formation of acids which are harmful to the rubber. To obtain the same neutralizing effect and the beneficial results it is suggested that when tubes or other rubber articles are stored a small quantity of quick lime or ammonium carbonate be included in the wrappings, though it should be kept separate so that it does not come in actual contact with the rubber. Also it is suggested that periodic washing with ammonia and water is an excellent preventative of hardening.

Simple Cause of Balking Engine.

Though present day motors seldom fail to start after having been "turned over" once or twice, a balky one occasionally is encountered, and it was with one of these that a motorist recently had a protracted session. "I tried everything that ever has been advised to induce the engine to start," he said, "and then I sat down and thought for a few minutes. The explanation seemed ridiculously simple—the car had been standing idle for some time and the gasoline in the carburetter had become 'stale.' I drained the carburetter, after having first turned off the gasoline, and refilled it, and as the engine went off at the first turn my conjecture must have been pretty nearly right. At any rate, the same procedure always has worked since and I have had need to rely on it on more than one occasion."



FIGS. 10 AND 11—JACKSON AND KNOX OVERHEAD VALVE MECHANISM

identally, owing to the use of better materials and to better design in general, all engines give considerably less trouble than they did a few years ago, and the advantages which the addition of two or more cylinders give are far greater in reality than is the possibility of one-third more trouble.

That modern engines have been wonderfully improved within a very short time is evident if those of even one or two years ago are compared with the newest creations. Efficiency and durability have been increased, and though it now is possible to get very much more power from the same size cylinders, the increased piston speed which is necessary often results in very marked vibration. Though this question of vibration has been given considerable attention within the last year, and the balancing of parts now is carried to a greater extent than ever before, no perfectly satisfactory remedy has yet been found. Just as with other parts of the engine the improvement in this respect has been apparent, though the result still is very far from perfect. Owing to the tendency toward gearing cars lower in order to gain greater flexibility, it is probable that, if not at present, then in the very near future, the greatest problem with which designers will

to fit into the intake pipe a three-way cock which may be opened to admit pure air into the cylinders and at the same time close the throttle. Such an arrangement will have the further advantage that the cylinders will be thoroughly scavenged and cooled when the throttle is closed as when coasting down hill.

Equalizing Compression in Cylinders.

Engines should be tested periodically for equality of cylinder compression. While a slight difference in compression between two cylinders will cause a corresponding difference in power, it may be so small as to make no appreciable difference in the running of the engine and therefore may be neglected if the car is to be used for ordinary purposes. But for speed work or for use in hilly country, such differences should be corrected, and if slight their determination will require the use of a pressure gauge. Differences in compression which are great enough to cause the engine to run irregularly always may be detected through the sound of the exhaust. The cylinders in which the compression is weak will make considerably less noise than those in which it is normal. If the exhaust is closely muffled and no cut-out is provided, the difference will be apparent

AMERICAN SAURERS ABOUT READY

Actual Reproduction of Swiss Truck Commenced in New Jersey—Its Air Brakes and Other Special Features.

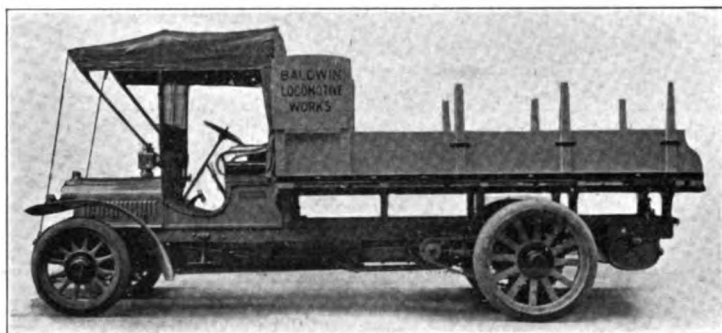
Saurer trucks long have been favorably known as importations to this country, and while the licensee, the Saurer Motor Co., of New York City, has assembled a few chassis in its Plainfield (N. J.) works from imported parts, its preparations to build an American version of the foreign product are only just reaching a stage of completion. Since Adolph Saurer, of Arbon, Switzerland, developed his first motor ve-

hicle, starting system, which is one of several original features of the truck, rendering the use of batteries to facilitate starting unnecessary.

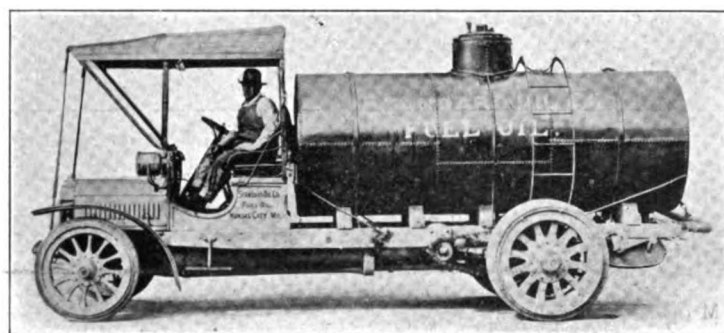
Cone clutches, leather faced over rubber cushions, four-speed selective gearsets, long semi-elliptical springs with helical buffer springs in the rear, solid frame construction and low suspension are features which do not differ materially from those found in other trucks of good construction. The wheel base of the smallest of the three sizes is 141 inches, while the $4\frac{1}{2}$ and $6\frac{1}{2}$ ton sizes have 153 and 159-inch bases, respectively. The two larger machines have 64-inch treads, while the $2\frac{1}{2}$ ton size has 58-inch tread. Such is the effect of the low-hung suspension that the

starter is of the compressed-air type, but entirely original in detailed construction. It embodies an air pump driven by the engine and a special form of distributor valve which automatically selects for compressed air starting charges the cylinders in their proper firing order. Differing from other and somewhat similar devices, it is capable of spinning the crank shaft at speeds up to 600 revolutions per minute, while the normal engine speed is only 1,000 revolutions.

The air brake effect is obtained by the ingenious device of converting the engine temporarily into a two-cycle compressor. As the throttle lever is brought back to the position of full closure, the first effect is to open an air port in the intake manifold,



SAURER $4\frac{1}{2}$ TON TRUCK WITH WIDE PLATFORM BODY



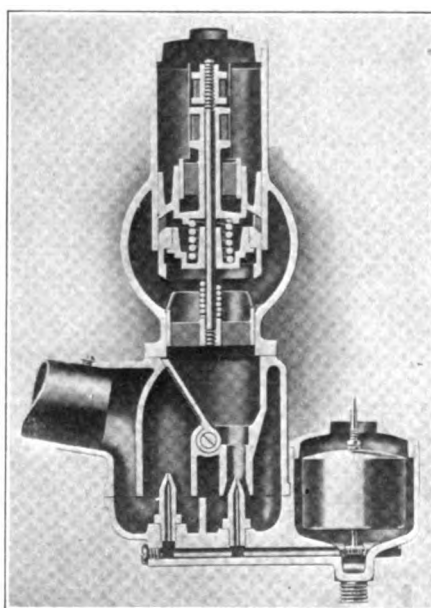
SPECIAL $6\frac{1}{2}$ TON TANK WAGON EQUIPMENT

hicle, for the delivery of embroidery making machinery, in practical competition with horse haulage in that mountainous country, the name has become even better known for the trucks which have won distinction for it than for the older industry with which the family was long associated. Furthermore, the product bears the impress of the severe local conditions encountered by the first machines of the line, and which, it may be added, took the road 17 years ago. At present five different factories are producing Saurer trucks, four being located respectively in Switzerland, France, Germany and Austria, and it is noteworthy that production is so regulated that all parts will interchange, no matter in which of the five factories they are produced.

Three models are manufactured, of $2\frac{1}{2}$, $4\frac{1}{2}$ and $6\frac{1}{2}$ tons capacity. They are of generally uniform design, the same motor, indeed, being employed in the two larger models. The smallest of the three, however, is of shaft driven, instead of chain, construction, and has a block type of motor. The cylinder dimensions of the latter are $3\frac{1}{2} \times 5\frac{5}{16}$ inches and the block casting is of T-head form, the valves being on opposite sides. The larger motor, which rates at 37 horsepower, has cylinders which are cast in pairs and which are of $4\frac{3}{8} \times 5\frac{1}{2}$ inches bore and stroke. Ball bearing crank shafts are used on both engines, one of the smaller size, it is said, having done $3\frac{1}{2}$ years' service without renewals. Magneto ignition is used exclusively, the engine

lowest type of body for the $4\frac{1}{2}$ -ton truck can be built with a loading platform only, 32 inches above the ground, while the lowest body floor for the larger size is 34 inches.

More noteworthy features of construc-



THE SAURER CARBURETTER

tion which have served to add materially to the prestige of the line include the engine starter, the air-brake system, the carburettor and the speed regulator, four details of unquestioned excellence. The

and the second, obtained by further movement, to cause the exhaust cam shaft to be displaced, bringing a special set of cam faces under the valve lifters. The result of this is to cause the exhaust valves to open and close in a new sequence and so to cause the pistons to induct charges of air on each down stroke, compress them on each up stroke and release them at the end of the up stroke. As the action is secured progressively in proportion to the movement of the throttle lever the braking action may be graduated as desired. From 80 to 90 per cent. of the full power of the engine may be utilized for retardation by this system, it is claimed. Supplementary to the air brake system are a countershaft brake and a pair of rear wheel brakes of the usual types—contracting on a shaft and expanding in drums on the rear wheels.

The carburettor is distinguished by a double-jet arrangement, the unusual feature of which is that the secondary jet is enclosed in a separate compartment from the main mixing chamber and separated from it by a clack valve which is controlled by a spring and dash-pot arrangement. At low and moderate speeds, therefore, only one jet is in use, as in the simple type of carburettor. At higher speeds, however, the added suction causes the clack valve to open, thus bringing the supplementary jet into service.

The speed regulating system takes the form of a centrifugal governor mounted within the driving gear on the inlet cam shaft and acting on the throttle through a

lever arrangement. Its peculiarity is that it is interconnected with the change gear lever. When the lever is in low speed the governor regulation is normal and the engine is thus permitted to attain its maximum speed and power. In the higher gear positions, however, the effect is to cut down the engine speed by suitable amounts, while placing the lever in the neutral position automatically reduces the engine speed to about 400 revolutions per minute. Thus racing of the engine while it is out of gear is prevented, while for starting, hill climbing and heavy duty work the full speed range is attainable. At the same time the vehicle is safeguarded against excessive speeds and one salient cause of rapid deterioration is thus automatically avoided. The maximum speeds of the three sizes of truck when running on fourth speed and with engine speeds of 1,000 revolutions per minute, by means of the governing system

ERNOULT EVOLVES TUBULAR SPRING

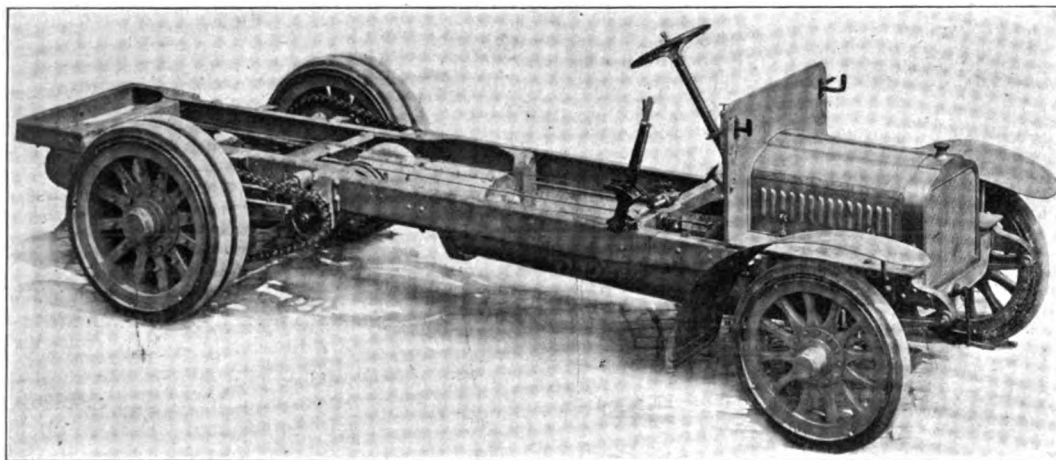
French Inventor Departs Radically from Beaten Paths—Theory and Alleged Advantages of the New Spring.

With the characteristic freedom from convention of his race, a French inventor has developed a tubular form of helical spring of which much is expected by those who have had opportunity to study its properties. Hitherto, while the advantages of tubing, as compared with a plain bar of equal diameter, have been pretty thoroughly appreciated, it has been supposed that the additional rigidity obtained by the tubular form was available only for purposes of fixed support. It remained for M. Francois Ernoul to prove that the tubular form is

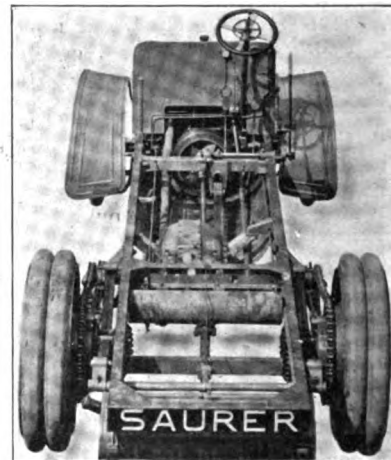
size as a solid bar is more flexible than the latter.

"Mr. Ernoul has made a convincing comparative test at the Arts et Metiers laboratory. Two springs absolutely the same in appearance, the one of solid ware, the other of tubing one-millimeter in wall-thickness, were tested. Under a pull of 660 pounds the tubular spring yielded by nearly three inches, the solid spring by less than an inch and a half. After this amount of flexion, the tubular spring showed a permanent deformation of 1/25 inch, whereas after a flexure of 1½ inches the permanent deformation of the solid spring reached ¼ inch.

"For equal exterior dimensions, the tube is therefore more flexible; it bends more and recovers better. On the contrary, for equal weights, the tubular spring will resist a stronger pull. For equal strength it gives a serious economy of weight—an



SAURER 6½ TON CHASSIS SHOWING UNIQUE REAR SUSPENSION



REAR OF 4½ TON CHASSIS

described, are restricted to, respectively, 25, 16 and 10 miles an hour.

Program for Electric Car Convention.

In connection with the opening of the forthcoming electrical show in the new Grand Central Palace, New York City, the Electric Vehicle Association of America will hold its second annual convention in the same building, the date of the meeting being October 10th, while the show is scheduled to open on the following day. The exhibits of automobiles and batteries in connection with the show and the working demonstration of cars of various types on the testing track to be built on the top floor will be a special feature. Ten papers on pertinent topics are included in the set program, including one on "Electric Vehicle Commercial Problems," by L. L. Lloyd and John Meyer, of the Philadelphia Electric Co.; another by E. S. Mansfield, of the Boston Edison Co.; a third by E. W. Curtis, Jr., of the General Vehicle Co., and still another by J. G. Henninger, of the National Electric Lamp Co., of Cleveland, O., on "The Proper Equipment and Lighting for an Electric Garage."

equally useful when subjected to varying loads acting under varying degrees of deflection.

The result of Ernoul's experiments has created a good deal of favorable comment in the French technical and scientific press, the result of which is summarized in a translation appearing in the Literary Digest. "The use of steel tubing is very extensive in these later years," says this authority, "but hitherto the word 'tube' has evoked an idea of stiffness, of rigidity. This idea is explained by the fact that for equal weight a tube is much more stiff and strong than a solid bar; so the tube is always used when we wish to obtain great strength with slight weight. This is the case with a large number of pieces of bicycles, automobiles, aeronautic and similar apparatus.

"Now an engineer, Mr. Francois Ernoul, has made of the tubular section an application that would appear somewhat unexpected, in the manufacture of springs. 'A tube,' we shall be told, 'cannot be used for a spring; it can be only stiff and will break sooner than bend!' Now this is a fallacy. The truth is that a tube of the same outer

appreciable advantage in certain applications, such as aviation (buffer springs for landing, etc.). Its smaller inertia enables it to react flexibly in very rapid movements where mass-inertia would interfere.

"The theory of the hollow spring depends on the theory of the tube. It is well known that in a solid bar that does work by twisting, for example, the fibers of the metal that 'tire' most and consequently determine the limit of resistance are found at the edge. The fibers do less and less work as they approach the center, where the so-called 'neutral fibers' do scarcely any work at all.

"The superiority and the economy of the tube are due to the suppression of the neutral fibers and those that are most inactive and the preservation of those fibers alone that do the most work.

"In spiral springs, the metal does its work precisely in the desired conditions for making the tubular arrangement manifest its advantages. The same principle of economy may be applied in some sort to flat springs; in place of making them of flat plates, they may be given a curved profile in transverse section."

TO "GET EVEN" WITH BIG RAILROAD

Gigantic Scheme Hatching in California to Avoid Southern Pacific—Motor Trucks a Means of Retaliation.

In recounting his impressions of a leisurely trip to the Pacific Coast and return, George K. Birge, president of the Pierce-Arrow Motor Car Co., Buffalo, N. Y., expresses a great interest in a remarkable step that is being taken by Los Angeles, whereby motor vehicles, in connection with a chain of transportation involving the Panama Canal, are to be an important factor in gaining public independence from the alleged monopolistic tyranny of the Southern Pacific railroad. Furthermore, the people of Southern California are not only co-operating with Los Angeles in the scheme but are planning to use motor vehicles in a way that will give good transportation to many districts that, having prayed for railroads in vain, have heretofore been under the blight of isolation.

"If ever there was a boomerang, it is the ill-treatment the Southern Pacific is accused of having given the public and the California shippers in earlier years," Birge explained, "and it is coming back to them hard. It used to be that the railroad was oppressing and abusing the people, according to the latter, but such has been the vigor of their revolt that not only has the railroad lost political control of the state executive, the legislature and the officers in the municipalities, but it is actually being persecuted and harried in a way that is full revenge for all past wrongs. And now motor vehicles are to be used in a gigantic plan to avoid the necessity of using the Southern Pacific at all for shipments from Los Angeles to the East.

"With the co-operation and support of its own business men and of the fruit growers in the territory of which it is the largest city, Los Angeles has arranged for the outright purchase of a great broad highway for motor vehicles from the city to the Pacific Ocean, the city being some 15 or 20 miles inland. At the ocean itself the city has bought a whole harbor bay, so that the Southern Pacific cannot shut off the boats. Immense motor trucks will be used to convey fruit shipments and merchandise from the city to the steamers, some of which will make regular trips to New York via the Panama Canal and others of which will go up the Pacific Coast to points where it is possible to connect with railroads other than the Southern Pacific, such as the Great Northern or the Canadian Pacific. This plan is hailed by the fruit men as breaking the Southern Pacific's power to say when and at what price fruit shall be shipped, a power which practically placed the fruit market in the railroad's hands.

"With this Los Angeles-to-the-Ocean motor vehicle system in good working order, the fruit men plan to project a number of motor vehicle service lines across the state. Owing to the topography of California, the railroad system runs up and down the state, parallel with the coast, and is very meager in crosslines. Only a few of the many attempts to get the Southern Pacific to build side extensions into the interior of the state have been successful, and the railroad has been successful in preventing independent capital from getting charters and building such roads. The landowners of the interior now see in the motor vehicle a means of accomplishing results that otherwise could only be brought about by the building of railroads."

Arrests Uncover a "Used Car Plant."

Daniel S. Richards, of Yonkers, N. Y., and Charles Ross, a chauffeur, giving as his address the Hotel Navarre, New York City, were arrested on Friday last, 8th inst., charged with grand larceny, the arrests growing out of the theft of an automobile belonging to George Taylor, of 347 Fifth avenue, while the latter was at the Brighton Beach races, on Labor Day. The police of New York and Yonkers were in possession of clues leading to a house on the thinly populated Grassy Spring road, and there found Taylor's car, as well as one other car freshly painted. Taylor's car had been scraped clean and a quantity of fresh paint was in the shed ready to be put on the car. It is claimed by police officers that they have unearthed the headquarters of a gang which made a lucrative business of stealing cars, altering their external appearance and obtaining new licenses, after which they would dispose of them at second-hand establishments. John S. Richards, a director of the Teal-Coryell Lumber Co., and father of the accused Daniel Richards, stated that his son recently had gone into the automobile business and made a specialty of buying second-hand cars.

Tall Tale of Truckload of Tires.

Mrs. Kate Filberk, of 266 Forty-seventh street, Brooklyn, N. Y., was arrested last week on a charge of receiving stolen goods, and she finds it rather difficult to convince a skeptical magistrate of her innocence. In fact, the latter entertained the charge made by several detectives and Gilbert C. McCullough, a tire dealer at 1700 Broadway, New York City, who assert that they found fully \$700 worth of stolen automobile tires in the cellar of her home. Mrs. Filberk declares that on August 16th, while her husband was away on his vacation, a truck loaded with tires appeared at her door, and the driver stated he had permission from Mr. Filberk to store the tires in her cellar for a few days. The return of Mr. Filberk from his vacation and the visit from the detectives occurred the same evening, and an hour later Mrs. Filberk was locked up.

GILBERT ESTIMATES TIRE OUTPUT

Reckons 1912 Needs Will Approximate 4,000,000 Tires—Big Factories to Operate Full Time All Winter.

Approximately 4,000,000 pneumatic tires will be required to shoe the automobiles running in America during the year 1912, according to the estimate of J. M. Gilbert, general manager of the United States Tire Co.; and as an indication that he really believes the coming year will develop some wonderful sales records, arrangements have been completed whereby the company's immense factories will be run throughout the winter months on full summer schedule. Winter generally is supposed to be the "off season" in the tire business and this will be the first instance where rubber plants of this magnitude have maintained the same working forces from September to April that were employed during the remainder of the year. Each of the company's factories will also be increased in both extent and equipment, so that the combined output for 1912 will be far in excess of this year's record.

Although naturally conservative, Gilbert is extremely optimistic over the immediate outlook and is of the opinion that the coming year will see the automobile industry taking the longest strides in its history.

"When the United States Tire Co. was formed we increased our producing facilities until we felt reasonably sure that we would be able to meet the demand for our four brands of tires," he says. "How far off we were in this estimate is best illustrated by the statement that during the past six months, ending September 1, we have fallen short of filling our orders to the extent of about \$2,000,000. And this in spite of the fact that we have been working three eight hour shifts at each of our factories throughout the summer. We do not intend that such a condition shall arise again. That is why we have decided to operate our factories with a full working force throughout the winter. We will also enlarge the factories and install a great deal of new machinery and tire making equipment.

"We have considered the future of the automobile from about every angle and while we do not share the ultra optimistic views of some of those connected with the industry, we are convinced that next year will be an exceedingly big one for all branches of the trade and that at least 150,000 new cars will be in use."

Cortland Wagon Gets Plant in Pittsfield.

The Cortland Motor Wagon Co. has been removed from Cortland, N. Y., to Pittsfield, Mass. Additional machinery has been installed with a view of increasing the output.

MOTOR CAR THAT DOES FARM WORK

Oregon Ranch Owner Puts it to an Astonishing Variety of Uses—Some of Its Many "Chores."

The truth of the old French proverb, "the appetite comes while eating," again is proved in the case of James Thompson,

that is necessary to make it ready for instant departure.

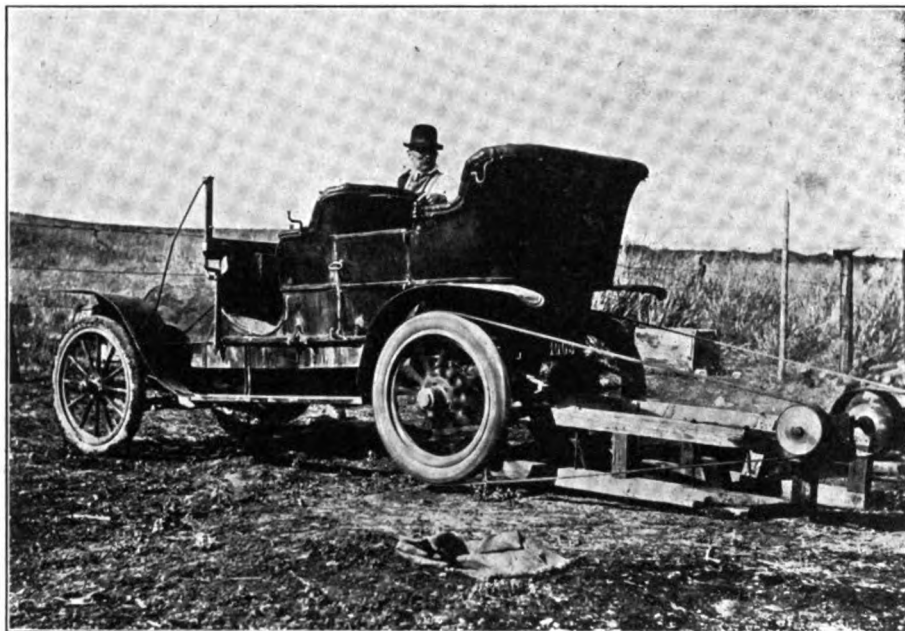
Millionaire's Private Automobile Road.

There are very few people in this country—or in any other for that matter—who are able to build an automobile highway, twenty-two miles in extent, all of which lies within the bounds of their own estate, and George W. Vanderbilt is one of these

The road was blasted into tremendous cliffs and has several sharp turns on the edge of sheer precipices, which are extremely difficult to negotiate with a high-powered car of long wheelbase. All but two miles of this road is within Mr. Vanderbilt's 140,000 acre estate, and another \$20,000 is to be spent in constructing a two-mile cut-off, so that the entire road will be on his domain

Extortion Charge for Jersey Justice.

After doing a land office business in fines for alleged violations of the speed law, Magistrate Joseph F. Weeks, of Pleasantville, N. J., is now in the limelight as a defendant on a charge of extorting illegal costs from automobile owners. He had become widely known through his alleged practice of "holding up" and fining motorists by letter after a manner not unknown in New Jersey, and many complaints have been laid against him. The principal complainant in the present case is Dr. Henry H. Grace, president of the Camden Motor Club, who is acting upon the complaints of Walter T. Reed, of Atlantic City; Harry Humphreys, of Camden, N. J., and J. Winton Schwartz, of North Philadelphia. In each incident Weeks is charged with collecting fines of upwards of \$15 and costs. Reed, in response to a summons from 'Squire Weeks, showed that his automobile was not in use on the day mentioned in the complaint, as the weather was bad. This, however, did not excuse him, but only served

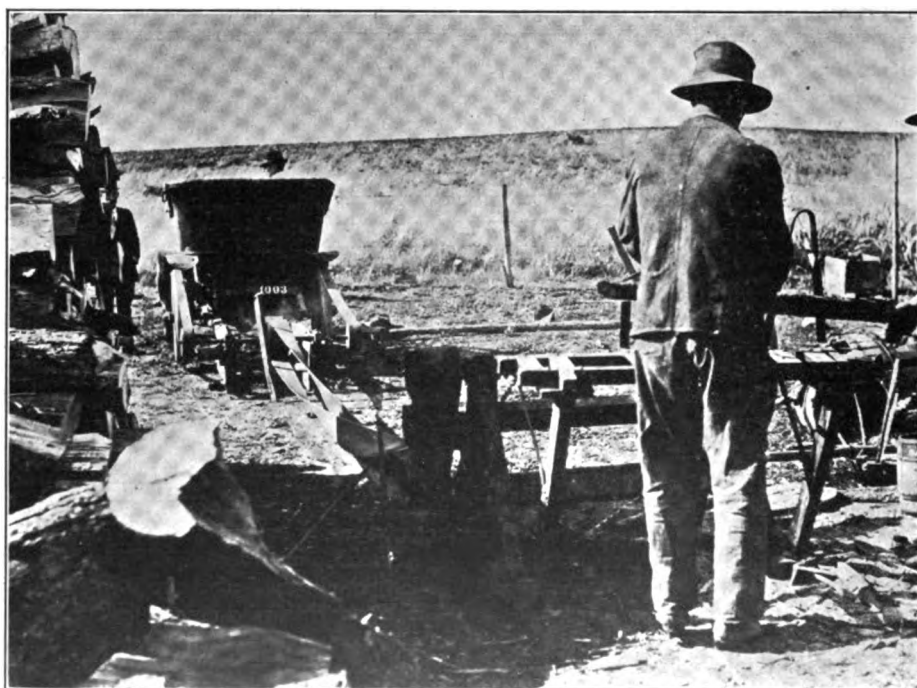


THOMPSON'S CAR OPERATING HIS FARM MACHINERY

of Pendleton, Ore., who a few weeks ago rigged up his Franklin touring car so as to run his barley chopper, thereby displacing no less than 14 mules. The progressive farmer since has installed a big buzz saw, a grain cutter, corn sheller and even contemplates running a threshing machine, all with the power placed at his disposal by his automobile. There is little doubt in his mind as to the economy of automobiles in farm life, for he keeps the 28 horsepower motor going every day—if not employed in driving the car to the nearby town or over his extensive ranch, then in doing the chores around the house and barn.

As will be seen in the accompanying illustrations the rear axle of the car is lifted clear off the ground, and across the end of the opposite end the wooden frame on which the axle rests is a jack shaft with three wheels, one at each end and one in the middle. Belts run from each rear wheel of the automobile to the wheels on the ends of the jack shaft, and from the wheel in the center of the shaft a long belt runs to the machinery which is to be operated. The size of the wheels effects a considerable increase in the number of revolutions of the belt wheel on the machinery, as compared with the turning of the rear wheels of the automobile.

When the car is needed for road duty, a simple throwing off of the belts is all



HOW THOMPSON EMPLOYS HIS CAR FOR SAWING WOOD

few. He just has finished the construction of a highway, 22 miles long, which leads from Biltmore House to his hunting lodge on the summit of Mt. Pisgah, North Carolina, 3,000 feet above the country house.

to have the fine reduced to \$10 and costs. After the fine was paid the matter was laid before the Camden club, which immediately took the necessary measures to stop such high-handed "justice."



995,224. Tire Alarm. Leonard Eugene Cowey, Kew Gardens, England. Filed May 15, 1908. Serial No. 433,075.

1. In an inflatable tire, the combination with the air tube, of a bell, a resilient expansible member in communication with the air tube, and an operating member for said bell which is normally secured from movement by the resilient expansible member but released thereby upon a reduction of pressure in the air tube so as to operate the bell.

995,308. Windshield. Raymond M. Watkins, Pittsburgh, Pa. Filed Feb. 26, 1910. Serial No. 546,077.

1. A windshield comprising upper and lower foldable sections, brackets secured to the upper portion of the lower section, braces pivoted to the upper section and adapted to engage the said brackets to hold

the two sections extended, and spring clips provided upon the upper section to engage the free ends of said braces and to hold the latter in folded position.

995,371. Fender. Oscar A. Ross, Chicago, Ill., assignor of one-half to C. Vallette Kasson, Chicago, Ill. Filed Dec. 23, 1908. Serial No. 468,891.

1. In a device of the kind described and in combination, a fender member and means for securing the same to a vehicle comprising a plurality of brackets carried by the vehicle, each provided with a circumferential groove therein, a coiled resilient supporting member for each of said brackets arranged thereon in said groove and means for securing said coiled members to the fender, said means comprising rail clamping members each comprising two members engaging with a tongue and groove connection at one side thereof and provided with means at substantially the opposite side for drawing and securing said parts together and with a circumferential groove for said coiled member.

995,400. Ignition Device. John F. Cavanagh, Providence, R. I., assignor of three-fourths to The Lindsley and Allen Electric

Company, Providence, R. I., a Corporation of Rhode Island. Filed Oct. 13, 1910. Serial No. 586,894.

1. In an ignition device, a coil-carrying casing having a contact carrying socket for readily receiving and completing the circuit through a spark plug, the axis of said socket being in a different plane from that of the coil casing, and a contact adapted to complete a circuit with a spark plug.

995,464. Mechanical Cranking Device for Engines. Frank Hull and George P. Hull, Constantine, Mich. Filed Sept. 20, 1910. Serial No. 582,916.

1. A cranking device including a main shaft, a friction pulley rigid on the main shaft, a second friction pulley loose upon the main shaft, operating means connected to the second pulley for rotating the same in the direction of the shaft, interlocking means disposed between said pulleys for movement in the same direction, a lever connected to the interlocking means for releasing the same, and an idler arranged between the pulleys and connected to the lever for connecting the pulleys for opposite rotation to one another upon the releasing of the interlocking mechanism.

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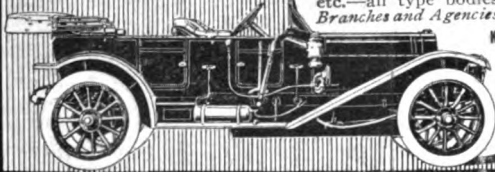
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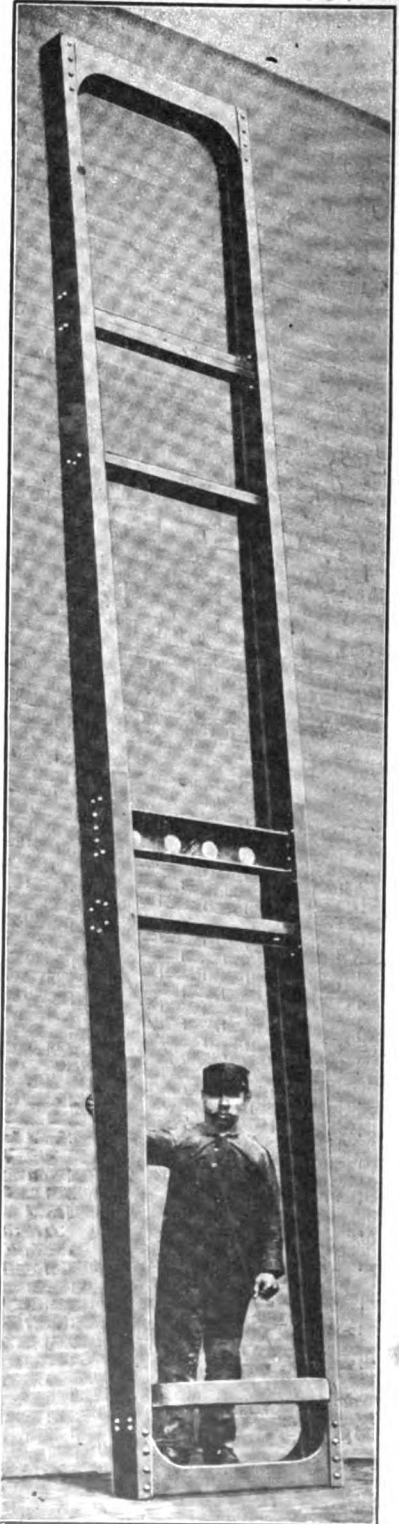
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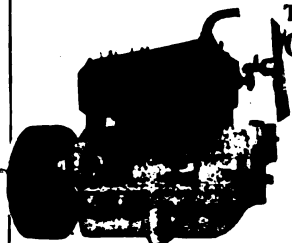
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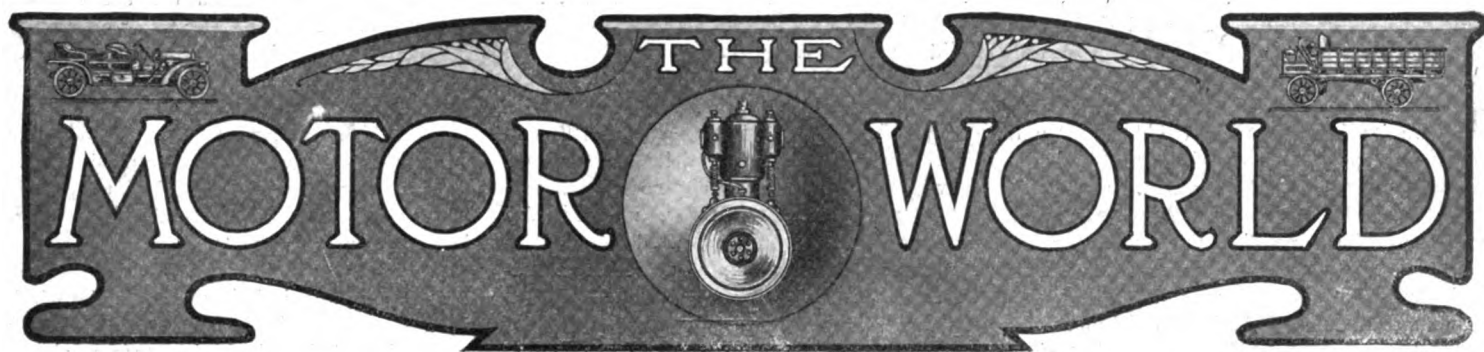
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SAURER-MACK MERGER ASSURED

Consolidation to be Styled International Motor Truck Co.—Basis of Transaction and Some Other Particulars.

Negotiations toward the consolidation of the Saurer Motor Co., of New York, and Mack Bros. Motor Co., of Allentown, Pa., which it is known have been in progress for several months, have practically reached the point of consummation.

While it is not definitely settled, it is practically certain that the merger will be styled the International Motor Truck Co., and that C. P. Coleman, president of the Saurer company, will hold the same office in the International company, and that J. M. Mack will be its vice-president.

The capitalization of the new company will be based upon the net quick assets of the merged concerns, and without reference to their present capitalization, which in the case of Saurer is \$1,600,000, and in the case of Mack \$1,000,000.

The Sphinx Motor Co., which is controlled by Saurer interests, and which has the American rights to the Reno-Bois slide valve engine, is not involved in the transaction, although it is admitted that the right to use the engine in commercial vehicles will be reserved for the new International company. So far as pleasure cars are concerned, it will remain as at present, licenses being available to all desirable car manufacturers.

It is generally considered that the merger of the Saurer and Mack interests will constitute a strong combination. The former, which only this year set up a plant in Plainfield, N. J., holds the American rights to the Saurer truck, which is of Swiss invention, and one of the best known and most reputable of carriers of the heavy type. The Mack output, on the other hand, is much more varied. It grew from the construction and operation in Brooklyn, N. Y., of a number of so-called "rub-

ber-neck wagons," but after the plant was removed to Allentown the scope was immensely broadened and the productions now include commercial vehicles of practically every type save the heaviest trucks.

When the merger becomes effective, which will be some time next month, both factories will continue to be operated and the names of both vehicles will be retained, the Saurer plant becoming the Saurer division of the International Motor Truck Co., and the Mack factory the Mack division of the same corporation.

One Firestone Quits Tires for Trucks.

Robert J. Firestone, sales manager of the Firestone Tire & Rubber Co., of Akron, Ohio, and a brother of the president of that company, has relinquished all connection with it and gone into the commercial vehicle business on his own account. He has purchased outright the United States Motor Truck Co., of Cincinnati, to which he will devote himself entirely. His brother, Harvey S. Firestone, tried to induce him to remain in the tire business, but Robert J. has become so enrapt in trucks and so bent on having a business of his own—and possibly had grown tired of being known chiefly as the brother of H. S.—that he struck out for himself; he hopes to make his truck company a real factor in the industry.

Detroit Heads Connecticut Project.

Eugene Sibley, who previously was identified with the Sibley Motor Car Co., of Detroit, and Joseph T. Curtiss, an automobile dealer in Simsbury, Conn., have formed the Sibley-Curtiss Motor Co., in the latter town, where they are preparing to manufacture cars. They have the production of three models in view at prices from \$1,250 to \$1,350.

Georgians Launch Company at Fairburn.

Robert F. Butler, W. L. Moor and J. H. Knight, who have organized the Piedmont Auto Mfg. Co., under the laws of Georgia, purpose establishing a plant at Fairburn in that state and sales offices in Atlanta. The company is capitalized at \$100,000.

STREATOR IN FINANCIAL STRAITS

Files Petition Under New Bankruptcy Provision to Relieve Its Embarrassment—Receiver Appointed and Removed.

Because about 20 per cent. of its creditors refused to accept an apparently generous proposal which had been submitted to all creditors, and because this minority threatened to take matters into their own hands, the Streator Motor Car Co., of Streator, Ill., makers of the Halladay car, on Saturday last, 23rd inst., hurriedly filed a petition in voluntary bankruptcy, which, however, does not, as usual, imply that it is desired that the company be adjudged a bankrupt.

At the same time, J. C. Barlow and Paul R. Chubbuck, president and vice-president, respectively, of the company, filed personal petitions in bankruptcy. They are its principal stockholders and had endorsed its paper to the extent of \$200,000. The petition filed in behalf of the company itself stated that it would require at least four days before an authentic statement of its liabilities and assets could be compiled and submitted.

The Streator company is capitalized at \$500,000, and is said to have assets amounting to about \$750,000. Its liabilities approximate \$300,000. Messrs. Barlow and Chubbuck have large real estate holdings in and around Streator, but they could not realize on the property in order to further assist the company, which, while doing a big business, had run short of available capital.

The Streator Metal Stamping Co., which is owned by the same interests, went into the hands of a receiver on the 8th inst., and while this foreshadowed trouble for the motor car company, it was hoped it might be averted, but the action of the minority creditors made the hope a vain one. When it was found that matters were approaching a climax President Barlow

and Vice President Chubbuck approached the larger creditors of the motor car company with a proposition to bond their real estate holdings for \$425,000 and give the bonds to the creditors of the company in payment of its debts, thus putting the company on its feet financially. About 80 per cent. of the creditors in number and amount accepted, but the minority blocked the proposed settlement. The result was the filing of the petition in bankruptcy.

It was the first case presented in this jurisdiction under the amendment of the bankruptcy act in 1910. The petitioners did not ask to be adjudged bankrupt, but simply that a meeting of their creditors be called to prove up their claims, and that at such meeting they proposed to submit to the creditors the proposition of accepting the bonds in payment of their claims against the motor company. Under the amendment referred to, a bankruptcy court in a case of this kind has the authority, where a majority of creditors in number and amount agree to accept such a proposition, to compel the minority also to accept. Such proceedings are common in England, and it was from English practice that the amendment to the American law was taken.

It is understood that a meeting of the Streater creditors will be called in about ten days.

The legal proceedings affecting the Streater Motor Car Co. were somewhat complicated by the action of one of the creditors, who, about two hours after the voluntary petition had been filed, presented a petition for the appointment of a receiver, at which time the Central Trust Co., of Chicago, was appointed by Judge Landis. On Tuesday, however, in a petition in which it was joined by its principal creditors, the Streater company asked that the order for the appointment of the receiver be vacated. After considering the matter over night, Judge Landis granted the petition and ordered the receiver removed, at the same time scolding the attorney who presented the petition for the receiver for not originally giving him all the facts in the case.

Gigantic Parts Plant for Toledo.

A. C. Berry, who was said to represent Pittsburg capitalists—who, however, are believed to be very much nearer New York—is credited with having purchased, last week, a plot of 27 acres in Toledo, O., on which, he let it become known, there will be erected a huge automobile parts factory—how huge is suggested by the fact that he is negotiating for 90 additional acres. The plot, already secured, is located on Manhattan boulevard and Stickney avenue. A \$500,000 company will be formed to operate the plant, which will be erected, and for which plans for three concrete buildings are said to be already in existence; one of them will be four stories, 220x600 feet, another of two stories, 185x600. The

identity of the real purchasers is shrouded in mystery, even in Toledo. The fact that the United States Motor Co. is preparing to build an exclusively spare parts factory at some "central point"—as was exclusively stated in the Motor World two weeks since—has led to the assumption that the Toledo purchase was made in its interest, but Alfred Reeves, of that big company, who is in a position to know, unqualifiedly denies the report. The United States Motor's parts project has not, he says, advanced that far.

"Family Troubles" Jar Findlay Company.

When early last summer it was given out that the Findlay Motor Co., of Findlay, Ohio, of which L. E. Ewing was president, had been reorganized under the style the Ewing-American Motor Co., with Ewing as president, apparently not all the facts in the case were made known. At any rate the merger or reorganization was not of such a character as to prevent the Ewing-American Motor Co., of New York, from throwing the Findlay Motor Co., of Findlay, into the hands of a receiver. This was done on the 19th inst., when, following the action of the Ewing-American company, John M. Barr was appointed receiver of the Findlay concern.

The petition to the court recites that the latter had debts of \$50,000 and lacked sufficient working capital to continue operations. Other sources allege, however, that lack of working capital has not been the only cause of unhappiness, some of which, and also the basis of the merger and the disposition of the stock, may be disclosed by the legal proceedings. The Findlay Motor Co. had not cut a very wide swath in the industry, but when early this year it absorbed the American Motor Truck Co., of Lockport, N. Y., of which L. E. Ewing at once became president, and whose plant was removed to Findlay, greater things were promised. The organization of the hyphenated Ewing-American company, with \$1,500,000 capital stock, followed several weeks later, but the heavier production of trucks, taxicabs, etc., has not conspicuously materialized.

Walker Brothers Become Pope Directors.

Charles E. Walker, vice-president of the Pope Manufacturing Co., Wilbur C. Walker, secretary of the company, and Frank A. Drury, president of the Merchants National Bank of Worcester, Mass., have been elected directors of the Pope Manufacturing Co., of Hartford, Conn., to succeed Harry Bronner, August Heckscher and H. L. Freedman, who have resigned from the board. The retiring directors are representatives of the New York bankers who were concerned in the reorganization of the company several years ago; their resignations are due to the fact that conditions no longer require their services.

The annual report of the company will be issued in a few days and will show earn-

ings somewhat smaller than last year, when 13 per cent. was earned for the common stock. The showing is said to be satisfactory in view of existing conditions.

Moreland to Make Trucks in Los Angeles.

Watt Moreland, who designed the Tourist car, which was manufactured in Los Angeles for several years, has transferred his attention to commercial vehicles, and has so greatly interested a number of residents of that city in a truck of his creation, that a company is being organized to build it, a site for a factory, 250 x 300 feet, at Willard and North Main streets, already having been secured. E. M. Champion and Sheldon Morris are among the men interested in the project. The Moreland truck, as it will be called, will be built in two, three and one-half and five ton sizes, the latter of which will employ double chain drive and will be distinguished by an electrical device to prevent undue speed.

Court Orders Sale of Norwalk Plant.

The property of the Norwalk Motor Car Co., of Norwalk, Ohio, which on the eve of its purchase by several West Virginia investors was thrown into bankruptcy, largely because of dissensions among the stockholders, has been ordered sold by the Federal receiver. The creditors are not likely to extract much satisfaction from the sale, as the property is appraised for only \$9,063, while the company's debts exceed \$27,000.

Rubber Goods Increases Dividend.

A quarterly dividend of 2 per cent. has been declared on the stock of the Rubber Goods Manufacturing Co., which controls the four United States Tire Co.'s factories. This is double the dividend declared three months ago, when the rate was reduced from 2 per cent., paid in the first quarter of the year, to 1 per cent. The regular dividend of 1¼ per cent. was declared on the preferred stock.

Cole Officials Off on Long Journey.

L. Carter, president of the Henderson Motor Sales Co., of Indianapolis, and Charles P. Henderson, vice-president and general manager, have departed for a two months' journey that will permit them to visit all of the principal Cole agencies in the western half of the United States. They will go as far north as Portland, Ore., and as far south as New Orleans, La.

Sheldon Axle Office in Detroit.

The Sheldon Axle Co., of Wilkes-Barre, Pa., has established a branch office at 1215 Woodward avenue, Detroit, where a line of its axles, jackshafts and springs will be displayed and where an engineer and draftsman will be stationed. David Landau, the company's consulting spring engineer, also will visit the Detroit office at least every third week.

DR. TESLA TALKS OF GAS TURBINES

So Confident, He Offers to Build Them for Motor Cars—Considers New Power His Greatest Invention.

Gas turbines of practical and efficient construction, light, flexible and in every way suitable for automobile propulsion, are not a dream of the future only but a probability of only a very few years hence. At least such is the conviction of Dr. Nikola Tesla, whose newly developed method of fluid propulsion, as he calls it, and which was illustrated and described in last week's *Motor World*, is attracting so much attention in scientific circles. Dr. Tesla himself considers it the greatest of all his inventions. By his own statement the scientist already has built, run and carefully tested internal combustion engines operating on the new turbine principle and so confident is he of the thorough practicality of the idea that on Friday of last week he informed a *Motor World* man that he would even be willing today to sign a contract to build and instal turbines for automobiles. He readily admits, however, that he would like to have more time, considerable more time probably, in which to develop a method of combustion entirely suited to the turbine.

Automobile motors, as a matter of fact, play a distinct part in the inventor's plans for the future. So do airship motors, pumps of various sorts, steam engines in every conceivable size, shape and capacity, and apparatus of other and varied uses. If in steam engines and pumps wonderful results already have been obtained, it is his expectation later to accomplish equally wonderful results with internal combustion engines.

Bearing in mind that a 110 horsepower steam engine already has been built so diminutive that its rotor or active part would drop into an ordinary water bucket, it would seem that the part of the program which might be supposed to concern the automobile industry would be well worth investigating. It was the tempting prospect of a pocket-size motor, therefore, which led a representative of the *Motor World* to seek the famous scientist in his offices high up in the Metropolitan tower in New York.

Contrary to popular impression, not all great and famous men are inaccessible, and Tesla proved not only thoroughly approachable but extremely ready to discuss the new turbine principle in many of its bearings. His easy predictions of the future developments of the system and his confident bearing when he declared it to be the greatest of his accomplishments, might have been merely the vaporings of an over-enthusiastic inventor; but the broad bear-

ing of the man, his record and the depth of perception revealed in some of his conclusions would have laid at rest such doubts. The new principle unquestionably is a great contribution to science and engineering, great in its simplicity and breadth of application. Just when its fullest realization will be given to the markets of the world is another question; one

(Continued on page 37)

Who's Making Ready to Leave Detroit?

If reports circulating in Gary, Ind., are correct, "one of the largest automobile manufacturing establishments in Detroit" is preparing to leave Detroit and may locate in Gary if it can acquire a site there upon which to erect a plant "costing \$2,000,000 and employing 2,000 men." Two other cities are said to be bidding for the enterprise, but Gary has high hopes, its local chamber of commerce having the matter in hand. The name of the Detroit company will not be made public unless the negotiations are consummated. Gary also has heard that an Anderson (Ind.) automobile company is anxious to locate "in its midst."

New York Supply Co. in Bankruptcy.

The New York Auto Supply Co., 219 W. Forty-sixth street, New York, on Tuesday last, 26th inst., filed a petition in bankruptcy with liabilities of \$12,356 and assets of \$7,314, consisting of stock, \$2,500, fixtures, \$469; accounts, \$4,259; personal property, \$75, and cash in bank, \$11. The company was incorporated in July, 1908, with capital stock of \$12,000. Benjamin D. Underhill is president and George H. Sprague treasurer. There are 135 creditors.

California Company Buys Oakland Plant.

The California Motor Car Co., of which Walter C. Sachs is president, and which recently commenced operations in a small way in a disused cotton mill in Oakland, has purchased the property and the adjoining land and now will enter the trade in real earnest; it expects to employ between 75 and 100 men, under the superintendence of A. J. Schram, and to turn out its first car by December 1.

Corbitt Separates Its Productions.

The Corbitt Buggy Co., of Henderson, N. C., which has been manufacturing both horse-drawn and motor-driven buggies, has separated those interests and formed the Corbitt Automobile Co. to handle and enlarge the motor buggy end of the business. The company has been incorporated under the laws of North Carolina, with \$250,000 capital.

Republic Begins Enlargement of Plant.

The Republic Motor Car Co. has commenced work on an addition to its plant at Hamilton, Ohio. The new building will be a brick structure, 60 x 350 feet.

PURCHASING AGENCY FOR TAXICABS

James Launches Supply-Buying Project of World-Wide Scope—Enormous Possibilities Are Outlined.

Having compiled statistics showing that the various taxicab, trucking and other public service companies operating motor vehicles in this country, annually purchase supplies to the value of at least \$12,000,000, Charles C. James, formerly of St. Louis and more recently of New York, has grasped the opportunity which the situation presents and means to make the most of it. He has organized the International Motor Service Association, which it is proposed to make the medium for the purchase and re-sale or distribution of not only such supplies, but cabs, trucks and other vehicles, at prices commensurate with the volume and which will effect a considerable saving for all of the service companies linked with the organization.

The association has applied for a New York charter, and until it is issued, James will not make public the names of any of the men associated with him in the enterprise. He admits that he is likely to become its president at the election of officers which will occur on October 10th, but will say nothing concerning the identity of the other probable officials. He did indicate, however, that the organization will lose no time in getting down to actual business. It has established headquarters in the Thoroughfare building in New York, and James stated that already it had perfected arrangements with the United States Tire Co. which will permit of the publication of its first tire catalog on October 10th.

Ten New York taxicab and rental companies form the nucleus of the International Motor Service Association, but the applications of others are in hand and as its title indicates it purposes being not merely national but of world-wide scope; the development of its European branch, however, is not a matter of the immediate future. The ten New York concerns referred to are the Packard Renting Co., Peerless Rental Service, Renault Taxicab Co., Thomas Flyer Renting Co., Universal Taximeter Cab Co., Interborough Taxi-Cab Co., Imperial Taximeter Co., Crawford Taxicab Co., Broadway Taxi Operating Co., and Natilus Taxicab Co.

The operating plan provides for the purchase of supplies by association members from local houses with which arrangements have been effected, the members obtaining a memorandum of each purchase, which they, in turn, forward to the association's headquarters, receiving by return mail checks from the association for the difference between what the members paid for their purchases and the association's spe-

cial price, which, naturally, is less than the price quoted to individual members.

James, the promoter of this huge project, has been identified with the taxicab movement from its infancy. He organized cab companies in St. Louis and several other Southern cities, and about two years ago came to New York, where he outlined plans that would permit of the formation of taxicab and parcel delivery companies in almost every town worthy of the term; the plans commanded the attention of the United States Motor Co., which has worked with James to the extent of developing low priced cabs and deliveries to meet the occasion. The big company is, however, in no way identified with James's international co-operating purchasing association, the scope for which is indicated by James's statistics, which show that the supplies purchased by the motor service companies include 18,000,000 gallons of gasoline, 200,000 gallons of lubricating oil, 250,000 tires, 500,000 inner tubes, 25,000 Weed tire chains, 1,000 motor cars, taxicabs, etc., and insurance premiums to the amount of \$1,000,000.

Site Purchased for Herreshoff Factory.

James Hamilton, of Pontiac, Mich., president of the Herreshoff Motor Co., of Detroit, has purchased a site on Woodward avenue, between Belmont and Trowbridge avenues, in that city, on which, it is stated, a new Herreshoff factory will be erected. The site comprises a ground area of 47,600 square feet. As the new site is in the midst of the residential section, a strong opposition has made itself manifest, and legal obstacles probably will be placed in the company's way.

Truck Company Seeks California Site.

The S. & D. Motor Vehicle Co., which has been incorporated with \$500,000 capital stock, is prospecting for a factory site in Oakland, Cal. It owns the patent on a four wheel drive truck invented by one Carlos Schmidt and is threatening to build "a large factory which will employ several hundred men." Schmidt, B. E. Duckworth and A. A. Montague, all of Oakland, are the incorporators of the company.

Luck May Locate Plant in Texas.

According to Texas prints, H. E. Luck, of Cleburne, contemplates the establishment of an automobile plant in that Texas city. Luck recently visited the factories in Michigan and elsewhere and is said to have become so filled with enthusing facts and figures as to believe that a factory in the Lone Star State will earn good profits.

Connecticut Opens Branch in Boston.

The Connecticut Telephone & Electric Co. and the Connecticut Shock Absorber Co., of Meriden, Conn., jointly have opened a branch at 819A Boylston street, Boston, Mass. It is in charge of Wm. A. Ellis, who formerly was sales manager for the Bi-Motor Equipment Co., of Boston.



Detroit, Mich.—Krit Motor Sales Co., under Michigan laws, with \$15,000 capital.

Adrian, Mich.—Union Garage Co., under Michigan laws, with \$20,000 capital; to operate a garage and storage warehouse for automobiles.

Grand Rapids, Mich.—National Motor Starter Co., under Michigan laws, with \$10,000 capital; to manufacture an automobile starting device.

Charleston, S. C.—King Automobile and Repair Co., under South Carolina laws, with \$5,000 capital; to deal in automobiles. Corporators—B. S. King, Jr., W. A. King.

Portland, Ore.—Ewbank Power Transmission Co., under Oregon laws, with \$250,000 capital; to manufacture and deal in motor vehicles. Corporators—Herbert B. Ewbank, Jr., Herbert Ewbank, Sr., G. W. Stapleton.

Anderson, Ind.—J. H. Cloud Top Co., under Indiana laws, with \$10,000 capital; to manufacture automobile parts and accessories. Corporators—J. H. Cloud, W. A. Hester, P. B. O'Neill.

Hartford, Conn.—City Auto Repair Co., under Connecticut laws, with \$1,000 capital; to deal in automobiles. Corporators—Charles V. Kierstead, Grant U. Kierstead, Florence C. Kierstead.

Chicago, Ill.—Sheridan Park Garage Co., under Illinois laws, with \$5000 capital; to deal in motor vehicles and maintain a garage. Corporators—Harold H. Hart, James P. Doane, Marie Phillips.

Camden, N. J.—Stone Harbor Garage and Marine Railways Co., under New Jersey laws, with \$75,000 capital. To operate garages and marine railways. Corporators—Charles H. Large, Louis H. Mathez, John D. Yarrow.

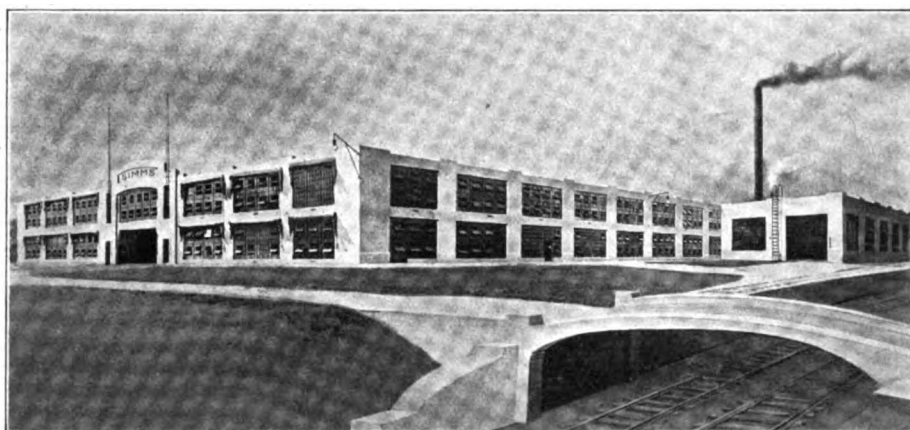
Grand Rapids, Mich.—Creston Auto Co., under Michigan laws, with \$4,000 capital; to deal in automobiles and motor vehicles. Corporators—James Vander Waals, Charles M. Smith, Claude McAuley.

Indianapolis, Ind.—Automobile and Supply Co., under Indiana laws, with \$5,000 capital; to deal in automobiles and motor accessories. Corporators—E. E. Helm, J. F. Ireland, Lavina Ireland.

Green Bay, Wis.—Green Bay Motor Car Co., under Wisconsin laws, with \$25,000 capital; to operate and deal in motor vehicles. Corporators—John Brogan, W. H. St. John, Augusta St. John.

Montpelier, Ind.—Automobile and Supply Co., under Indiana laws, with \$5,000 capital; to deal in automobiles and accessories. Corporators—Evert E. Helm, John F. Ireland, Lavina Ireland.

Camden, N. J.—Detroit Electric Car Co. of Philadelphia, under New Jersey laws, with \$25,000 capital; to manufacture elec-



—SIMMS MAGNETO CO.'S RECENTLY COMPLETED PLANT IN BLOOMFIELD, N. J.
The Main Building, of Concrete Construction, Covers 4½ Acres

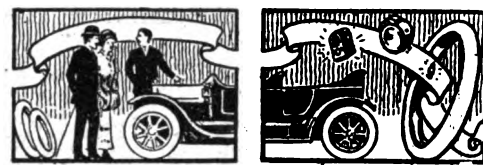
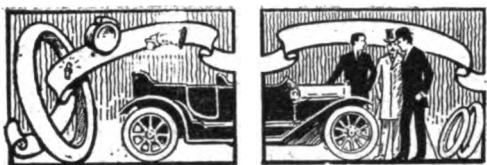
tric vehicles. Corporators—A. M. Garrison, J. M. Russell, A. S. Flowers.

Atlanta, Ga.—Piedmont Auto Manufacturing Co., under Georgia laws, with \$100,000 capital; to manufacture automobiles and motor vehicles. Corporators—Robert F. Butler, W. L. Moor, J. H. Knight.

New York City, N. Y.—Smith Gasolene Meter Co., under New York laws, with \$350,000 capital; to manufacture and deal in automobile parts, etc. Corporators—W. H. White, Jr., D. M. Baldwin, W. H. Brady, all of New York City.

Dayton, Ohio.—Heathman-Solliday Motor Co., under Ohio laws, with \$20,000 capital; to deal in motor vehicles. Corporators—Charles H. Solliday, Grace B. Heathman, Frank B. Heathman, Zora Y. Solliday, Joseph J. Chamberlain.

Rochester, N. Y.—Overland Rochester Co., under New York laws, with \$30,000 capital; to deal in automobiles and machinery. Corporators—Edward D. Creed, Clifford F. Cribb, both of Rochester; Royal R. Scott, of Canandaigua, N. Y.



W. P. Herman is building a garage in Mena, Ark. He will handle Buick cars.

Miller's Garage, on New York avenue, Deland, Fla., has been sold to Yeargin Bros.

The Universal Truck Co. has opened a New York salesroom at 1777 Broadway. Howard W. Walton is in charge.

F. H. Trout, who conducted a garage at Tremont, Ill., has sold his business to D. A. Stormer and Albert Wilson.

The Lincoln Auto Co., of the Nebraska city of that name, has added commercial cars to its lines of pleasure vehicles. It will sell Grabowsky trucks.

The Borland-Grannis Co., which manufactures the Borland electric car, will open a salesroom in Chicago on October 1. It will be located at 2636 Michigan avenue.

J. W. Atherton has purchased an interest in the A. H. Vale Garage, at Albany, Wis. The name of the company has been changed to Green County Automobile Co.

Major W. Hess has purchased the garage business of Benjamin F. Campbell on Woodlawn avenue, Chicago, Ill. Hess will continue the business under his own name.

J. S. Quiggle, owner of a garage at Iowa Falls, Ia., has disposed of his interests to J. F. Crisp, of Waterloo, who will continue the business under his own name.

At a cost of \$9,000 William Reidt is building a garage in North Albina, Ore. It will be of brick and will occupy the corner of Albina avenue and Willamette boulevard.

G. Frank Davenport and Robert B. Parker have formed the Boston Motor Wagon Co., with headquarters in the Motor Mart. They will handle the Detroit Motor Wagon.

August Leberman has opened a garage and salesroom at 113 Ripley street, Davenport, Ia., under the style the Star Auto Garage. He will handle McIntyre cars exclusively.

The Geyer Sales Co., Dayton, Ohio, has been declared bankrupt and a receiver has been appointed for it. The company admitted its insolvency and consented to the receivership.

The Spokane Everitt Motor Co. has been organized in the Washington city of that name to handle Everitt cars. Vance Wolverton and C. E. Lane are the men behind the enterprise.

C. M. Wyckoff and L. P. Wyckoff have purchased the half interest held by George Cord in the Wyckoff-Cord Auto Co., Sioux City, Iowa. They will continue the business under the same style.

Grayson H. Staley, Samuel G. Duval, Elias B. Ramsburg and several other citizens of Frederick, Md., have formed a partnership and purchased the garage of Ira Fahrney, of the same town.

The L. D. McCarthy Auto Co., which handles Rambler cars in Spokane, Wash., has added commercial cars to its offerings. It will distribute Kelley trucks in Washington, Northern Idaho and Oregon.

Dr. Horton, a veterinarian, of Atchison, Kan., has found the doctoring of horses in this age of motor cars too unremunerative business and has opened a salesroom and garage for horseless cars in DeKalb, Kan.

The Traynor Auto Co., of Omaha, Neb., has relinquished its agency for Paige-Detroit cars to E. B. Heath. Under the style Heath Brothers the latter has opened an up-to-date garage and salesroom at Uehling, Neb.

Anthony Schrupp and W. J. Schuh have opened a garage on Iowa street, Dubuque, Iowa, in the former headquarters of the Brandt & Sheldon Auto & Garage Co. They have the agency for E-M-F and Flanders cars.

J. P. Mullen has been elected president of the Western Reserve Motor Car Co., Garford distributors in Cleveland, Ohio. He formerly was assistant manager of the Studebaker branch on East 19th street, in the same city.

H. P. Teichner, for 19 years a salesman for the White Co., has gone into business on his own account and opened salesrooms at 192 Twelfth street, Oakland, Cal. As might be expected, he will handle White cars exclusively.

Under the style the Marion Motor Sales Co., a new company has been formed at Cleveland, Ohio, with J. H. Poppenhagen as president. The company has opened salesrooms at 1851 East 65th street, where it will sell Marion cars.

The Vestal Motor Car Co., Pittsburg distributor of Universal motor trucks, has purchased a large plot of ground at the corner of Grand boulevard and Craig street, on which it will erect a service building at a cost of \$25,000.

Charles E. Miller, the New York supply man, has opened his 14th retail branch. It is in New York, making his second branch in the Metropolis in addition to his main headquarters at 97 Reade street. It is located far uptown—at 2782 Broadway, between 107th and 108th streets.

E. Byars, of Amarillo, Tex., and A. T. Ratliff, of Fort Wayne, Ind., have formed the Byars-Ratliff Auto & Sales Co., with headquarters at 307 Polk street, Amarillo,

Texas. Byars has the Maxwell agency for the Panhandle territory.

The Pope-Hartford Auto Co., of New York City, has taken over the business of the Pope Motor Co. of Jersey City, at Hudson boulevard and Communipaw avenue, and will continue it as a branch. B. F. Ellsworth is in charge of it.

Under the style the Galvez Garage a huge building is to be opened in the near future in Galveston, Texas. It will be occupied by the Inter-State Automobile Co., of which Moritz O. Kopperl is president and Harry Endicott manager.

R. A. Miller, of Denver, Colo., has purchased the garage and repair shop formerly conducted by C. C. Funnell & Co., at the Park Garage, San Diego, Cal. Funnell & Co., however, retain their salesrooms and the agency for White cars.

Incorporated under the laws of Ohio, the A. R. Davis Motor Co. has "opened up" in Cleveland, at 2034-36 Euclid avenue; A. R. Davis is president, and J. H. Kirkpatrick the secretary. The company has taken over the business of the Studebaker branch in East 19th street, which will be discontinued. A. L. Englander has been appointed sales manager.

The Standard Motor Car Co., of Spokane, Wash., has closed its doors and the Consolidated Motor Car Co., of the same city, has taken possession of the vacated quarters at 814 Second avenue, and will display there is White cars. The Standard Company formerly handled American, Stoddard-Dayton, Mitchell and Reo cars, but one by one these agencies were released until only Stoddard-Dayton cars remained. The Stoddard-Dayton agency now has been taken over by the C. H. Hornburg Co., which handles the other United Motors products. Frank W. Schultz, sole owner of the Standard company, has retired from business.

Recent Losses by Fire.

Secane, Pa.—Byard Street's garage completely gutted. Loss, \$4,500.

Whitehouse, N. J.—James N. Pidcock's garage and two cars burned.

Hillsboro, Texas—W. J. Russell's garage and contents destroyed. Loss, \$4,000.

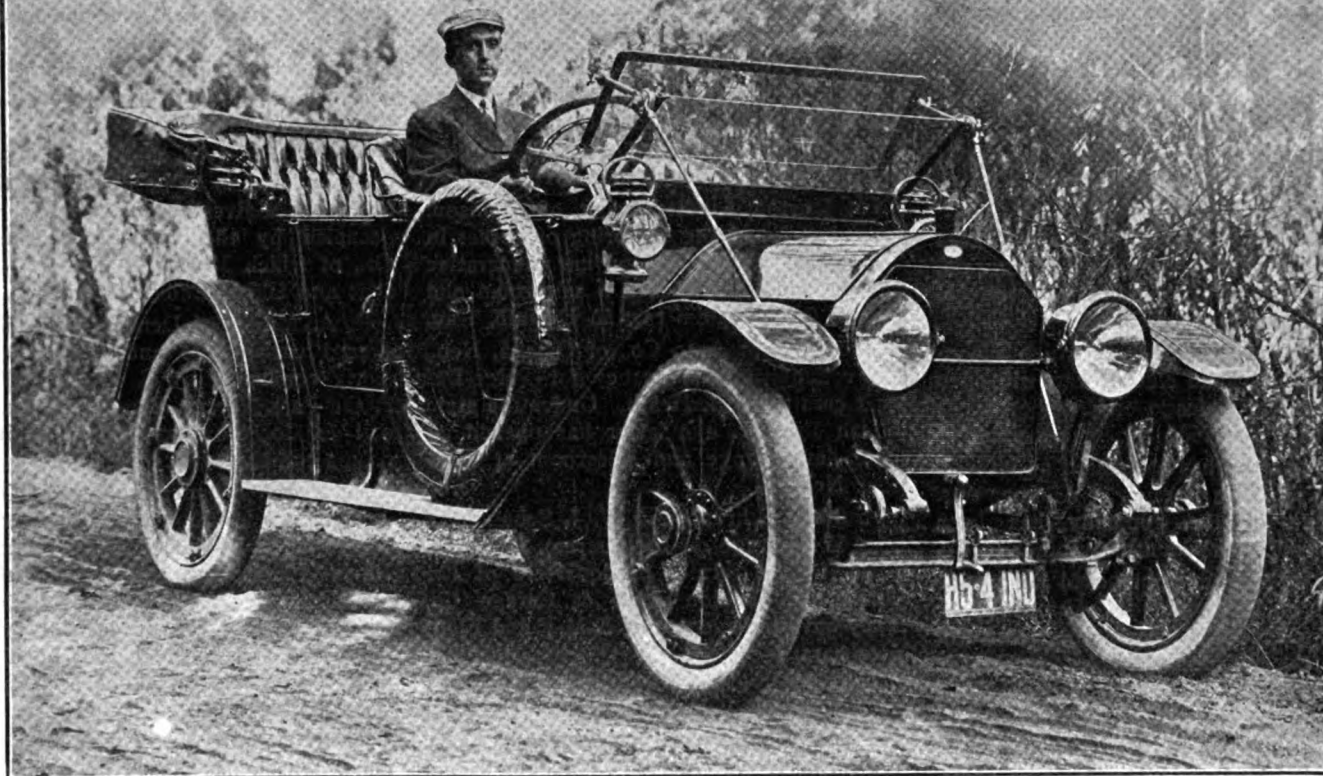
Exeter, N. H.—B. A. Hawkins's garage and two automobiles destroyed; total loss.

Chippewa Falls, Wis.—Northwestern Wisconsin Auto Co.'s garage burned. Loss, \$2,000.

Los Angeles, Cal.—American Ever-Ready Co.'s storerooms, 1044 Main street, gutted, one automobile and large stock of supplies burned. Loss, \$13,000.

THE MARMON

"The Easiest Riding Car In The World"



3700 Miles of Proof

That's the distance covered by the Marmon at an average speed over 66 miles per hour, in winning the world's greatest list of victories.

This unequaled demonstration has proved beyond a doubt, the staunch reliability of Marmon construction combined with the perfect balance that insures luxurious comfort as well as economy of tires, fuel, oil and upkeep.

Can you ask for greater proof of value than the fact that this demonstration is by comparison with the best and highest priced cars of Europe and America?

If you desire any further proof—go to the Marmon owner and learn of the value of his car in daily service.

Five body styles—one chassis. Five Passenger Touring Car—Four Passenger Suburban—Two or Three Passenger Roadster—\$2,750. Also Landulet and Limousine Models.

NORDYKE & MARMON CO.

Indianapolis

(Established
1881)

Indiana

Sixty Years of Successful Manufacturing

The World's Greatest List of Victories

International Sweepstakes Race—500 miles in 402 minutes 8 seconds, establishing new world's records for 400 and 500 miles.

Cobe Cup Race—200 miles in 163 minutes 26.1 seconds.

Wheeler & Schebler Trophy—200 miles in 166½ minutes.

Vanderbilt-Wheatley Hills Trophy—189.6 miles in 190 minutes 21½ seconds without a stop.

Atlanta Speedway Trophy—200 miles in 182½ minutes without a stop.

Atlanta A. A. Trophy—120 miles in 109 minutes 26 seconds without a stop.

Remy Grand Brassard and Trophy—100 miles in 80 minutes 40.7 seconds. (The car which won first was disqualified later, giving the Marmon first and second.)

Remy Grand Brassard and Trophy—50 miles in 42½ minutes without a stop.

Los Angeles Grand Prize—100 miles in 76½ minutes without a stop. Breaking world's record regardless of class.

Two Hours Free-for-All—Los Angeles—148 miles in 120 minutes without a stop.

Fifty Miles Stock Race—Los Angeles—50 miles in 39 minutes 53.55 seconds without a stop.

Hundred Miles Stock Race—Los Angeles—100 miles in 85 minutes 22 seconds without a stop.

Ascot Trophy—100 miles in 103 min. 14½ sec. without a stop.

Ascot Fifty Miles—50 miles in 50 minutes 10½ seconds.

New Orleans Prize—100 miles in 107 minutes 14 seconds without a stop.

New Orleans Fifty Miles—50 miles in 54 min. without a stop.

Elgin, Kane County Trophy Road Race—170 miles in 184 minutes 46 seconds.

Vanderbilt Cup Race—Marmon second, only 25 seconds behind the winner, a car 83½ per cent. larger. 278.08 miles. 256 minutes 23 seconds.

City of Atlanta Trophy Race—200 miles, 171 min. 12½ sec.

Atlanta, Cocoa Cola Trophy Race—Marmon second. 100 miles, 87 minutes 27.3 seconds.

Savannah Challenge Trophy—276.8 miles, 263 min. 40 sec. Without a single stop. The longest non-stop race on record.

Savannah, Grand Prize Race—Sixth; 415 miles in 390 minutes 22 seconds.



PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

A. B. SWETLAND.....President
F. V. CLARK.....Secretary-Treasurer
R. G. BETTS.....Managing Editor
154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 DECKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) . . . 10 Cents
Foreign and Canadian Subscriptions . . . \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceeding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, SEPTEMBER 28, 1911.

Non-Skids and Nature's First Law.

To recall that only two or three years ago the solons who make our laws were legislating against the use of chains and other non-skid devices is only less remarkable than that today there should remain a very considerable number of motorists who, if they do not disclaim to employ such life-saving devices, are uncommonly careless in not employing them when conditions warrant.

Observation in city or country during a wet day or when streets are greasy or roads are deep in surface mud, or sub-surface mud, will disclose an astonishing number of such persons. The wonder is that more of them do not meet the fate which they court, and doubtless if the facts were available, it would be found that many accidents, if they were not caused by the absence of non-skid devices, at least could have been prevented by their use. There is knowledge of at least one fatality which

is in this category and which was attributed to a wholly different cause.

Many motorists are unduly given to taking what are termed "long chances" and few chances that they take are "longer" than those of negotiating slippery surfaces with tires devoid of non-skid devices; on such surfaces even the skill avails little, certainly not enough to justify the peril involved, which is peril alike to driver and passer-by. It is a fine thing to be so unconscious of danger as to defy the first law of nature, but a "skidding" car is no common danger, and it is too easily overcome to be countenanced. The lengths to which such "unconsciousness" may be carried recently was witnessed in the case of a gentlewoman who, on a slippery, muddy road, was driving a car devoid of non-skids, overful of women and children, one of the latter actually being held in her own lap.

It may be impossible to save such persons from their own folly, but perhaps it is not such a far cry to the day when the same legislators who sought to make the use of non-skids illegal will be enacting laws requiring their use when weather or roads necessitate their use and fixing a penalty for their non-employment.

Visiting Engineers and Factory "Secrets."

As against the days when automobile factories guarded their methods and "secrets" as a bank guards its gold, the doors of foreign automobile factories are to be thrown open to the members of the Society of Automobile Engineers who sail from New York next November to visit the Olympia show. Not alone English factories, but some French factories are to welcome the American visitors, showing what a difference in attitude a few years can make, and raising the question as to how far automobile factory secrecy on the one hand and openness on the other are justified.

At the time when the French especially were doing important pioneer work in motor car manufacturing and designing, they had adequate reason to conceal their factory operations and methods as much as possible. The whole industry was so new that individual success depended largely on secrets and on discoveries in relation to automobile building. The French makers kept their secrets pretty well, except as the latter were disclosed by the cars themselves. But even when imitators saw what had been done, they were often in doubt as

to how and by what means the result had been accomplished.

As the basic data for automobile engineering have accumulated, however, and have become common property, the further "discoveries" of principles and processes are becoming correspondingly rarer, and the engineers, as well as the companies in whose interests their efforts are expended, find that a partial pooling of interests so far as relates to the general problems of automobile building, is individually profitable. The automobile engineer is now less a discoverer of basic automobile principles and inventor of, heretofore unknown mechanisms or methods than he is an adapter of recognized elements and constructions in forms suited to the peculiar needs of his company's demands on him.

It is not too much to say that the foreign engineers now have quite as much to learn and would profit quite as much by visiting American automobile factories as the American visitors will profit in going through the English and French factories. It is quite certain that if any of the makers across the water have anything that is really revolutionary in character on the draughting boards, it will not be included in what the visitors will see, nor is any premature disclosure of such a nature to be asked for. Nevertheless, the value of the opportunity that will be given the Americans is very real, even if it only results in self-satisfied comparison with their own factories at home. The larger significance is in the fact that foreign as well as American engineers are recognizing the general benefit that results when the experience and specialized knowledge of all the engineers concerned in motor vehicle construction can be made available in some degree to each of them in attacking his individual problems.

Suggestions of the "American Invasion."

Nationally the world is divided into groups of citizens who share in common the feelings of the gentle Quakeress. "All the world's crazy save thee and me, John, and sometimes I think thee's a little queer." That is why the German's pipe, the Frenchman's tall hat, the Briton's checkered waistcoat, and Uncle Sam's chin whiskers always are intensely funny. Industrial developments in particular, as first viewed from distant lands, invariably seem more or less to savor of the madhouse. This attitude prevails up to the point where an inter-

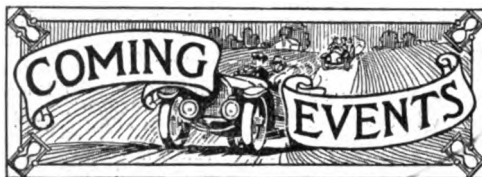
change of products forces recognition of mutual sanity.

The attitude of the English trade toward the American branch of the automobile industry claims particular attention just now because of certain utterances of the press regarding the Yankee product. Periodically English dealers experience an attack of the shivers over what they term an American invasion which seems to them to be impending. Always at such times they recall certain unpleasant experiences with cheaply constructed American wares and always they reason from the particular to the general in order to conclude that their several family roasts are endangered.

Max Pemberton, the author, who lately has been devoting much time to automobile subjects, has taken recent occasion to comment on the outcome of the latest of the "invasion" scares. The scare has passed, he thinks, but he concludes that a real and very present menace to British industry exists; American cars of a certain class are rapidly gaining a foothold in a section of the field which he more than intimates the British builder has been too slow to cultivate. It is his idea that his countrymen are making the great mistake of preserving an attitude of indifference when they should be actively engaged in meeting a fast-growing competition.

Simultaneously, Arthur Ludlow Clayden, engineer-editor, announces his views of the American industry as he himself has seen it, and plainly states that in certain respects, at least, the British manufacturer might "go to school" in the United States. His criticism of American practice may not be without bias, but certainly it contains the elements of wholesome advice. His ideas as to the shortcomings of the American engine are no less frank and genuine than his approval of certain other, albeit minor, features, and they are equally to be assimilated with mature and careful consideration.

With the arousal of the British trade to a recognition of the wisdom of American aims and accomplishments should come an equally effectual awakening on this side of the water to the needs of British and other foreign markets and business methods. The supposed "queerness" of foreign things arises mainly from unfamiliarity with them and with the conditions that have brought them forth. In the past American automobile builders have copied many things blindly from overseas prac-



September 30, Guttenberg, N. J.—Race-meet on Guttenberg track.

September 30-October 7, Sydney, N. S. W.—International automobile exposition under auspices of Royal Agricultural Society.

October 2-7, St. Louis, Mo.—St. Louis Automobile Manufacturers and Dealers Association's open air show.

October 3, Flint, Mich.—Race-meet under auspices F. A. Moross.

October 3-7, Danbury, Conn.—Track meet under auspices Danbury Agricultural Society.

October 7, Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

October 7, Springfield, Ill.—Springfield Automobile Club's track race-meet.

October 9-13, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

October 9-13, Denver, Colo.—Denver Motor Club's reliability tour.

October 12-22, Berlin, Germany—International automobile show in Exhibition Hall, Zoological Garden.

October 13-14, Atlanta, Ga.—Race-meet under management H. C. George.

October 14, Santa Monica, Cal.—Motor Car Dealers' Association's annual road races.

October 14, Santa Monica, Cal.—Santa Monica road races under auspices of Santa Monica Motor Car Dealers' Association.

October 14-25, New York City to Jacksonville, Fla.—American Automobile Association's eighth annual national reliability tour for the Glidden trophy.

October 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

October 27-November 3, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

November 1, Waco, Texas—Race-meet under auspices Waco Automobile Club.

November 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

Nov. 3-11, London, England—Society of Motor Manufacturers' and Traders' annual show in Olympia Hall.

November 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

November 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

November 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

November 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

November 30, Los Angeles, Cal.—Race-meet at Los Angeles Motordrome.

December 25-26, Los Angeles, Cal.—Race-meet at Los Angeles Motordrome.

January 6-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden.

tice, and not always with good success. However slow the Briton may be to grasp another's idea, his grasp is firm once attained, and his application intelligent, generally speaking. Automobile practice in different countries fast is being unified by the exchange of manufactures and theories, and it is plain to see that the growing strength of the industry of these United States can be maintained only by building better and better cars, not simply by building all cars of a single mark alike to standards of indistinguishable accuracy.

If non-contestants are desirable adjuncts to reliability tours, endurance runs and similar road contests, they should be non-contestants in fact as well as in name. Which is to say, they should not be timed, scored or subjected to technical examinations nor permitted to figure in any table of scores which may be evolved or issued.

It so often happens that scores of non-contestants are better than those of the real contenders that the glory of the latter is dimmed and credit given where properly none is due. The unfairness of procedure that renders possible such a state of affairs is so manifest that it would appear that either the A. A. A. or the M. C. A., or both in conjunction, should lose no time in correcting it.

When contracts are executed between promoters or managers and racing men binding the party of the second part to lose races, not to win them, no self-respecting sport-governing organization can shut its eyes to even the alleged existence of such a document, nor close its nostrils to the odor that emanates from it. Such contracts constitute what in the vernacular is known as "the limit"—the extreme limit—in sport.

DEPALMA ENTERTAINS THE QUAKERS

**Bags Four Firsts at Philadelphia Meet—
Tower Takes Two—Referee Rules Out
Car With Doubtful Tire.**

Although Ralph De Palma is credited with winning four out of the nine races at the Point Breeze track meeting on the 23rd inst., he really was more than four-ninths of the show. It was the first meet promoted by the Automobile Trades Association of Philadelphia, Pa., and without De Palma's presence it would have been much less notable.

In addition to bagging four firsts, the New Yorker established a new track record for a mile of 57.70 seconds, which is 1.10 seconds less than the old figures. In the 10 mile race for big cars—600 inches displacement and under—Irving Bergdoll,

was 10 seconds ahead of his nearest opponent, and without leaving the track, Tower came

W. D. Morton, Kline, was second, and Mortimer Roberts, Abbott-Detroit, third.

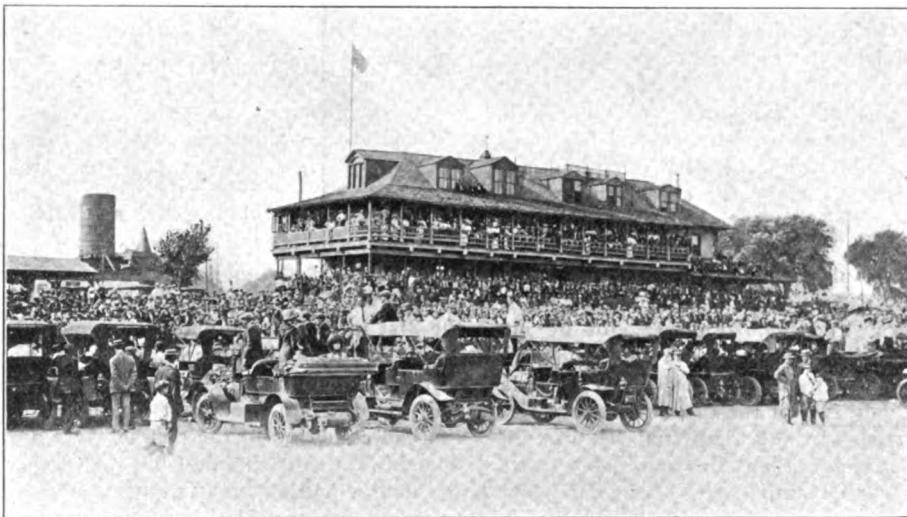
The match between De Palma and Louis Disbrow, Opel, which had been announced as a feature, was abandoned. Disbrow was at the track but his machine was not. Referee Pardington announced that the Opel had met with an accident and was not in condition to compete.

In the ten mile race for cars under \$2,000 only one of the entries, J. R. Raimey, Cino, appeared, and Willie Haupt, Buick, was permitted to start to make it a contest. It proved a runaway for Raimey, who also won the 25 mile Class E, 161-300 inches, event. Raimey secured the lead during the first mile and stayed there. George Parger, Ohio, and Earl Seachrist, Kline, trailed him in that order.

There was a good crowd in attendance, and not even knowledge of the dreadful tragedy at Syracuse the week previous served to keep the spectators from lining the rails.

The summary:

One mile time trials—Won by Ralph De

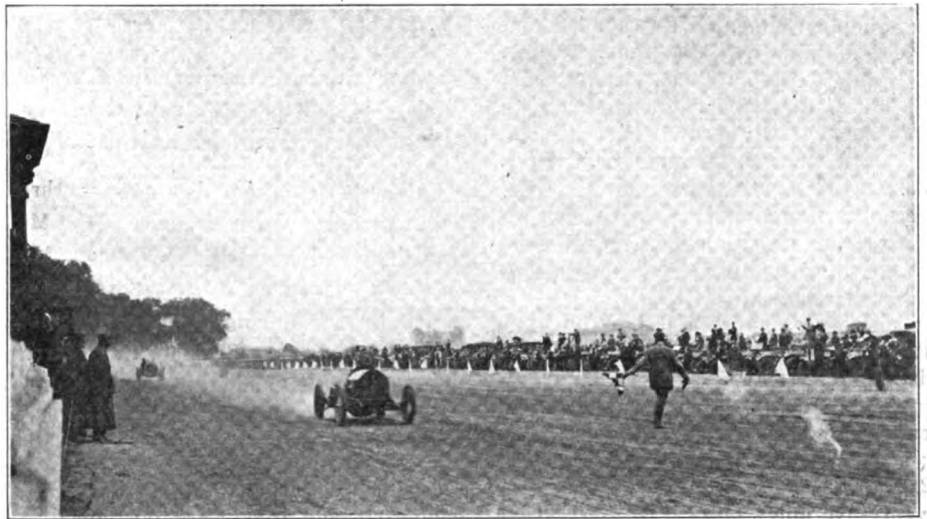


PART OF THE LARGE CROWD THAT LOOKED ON

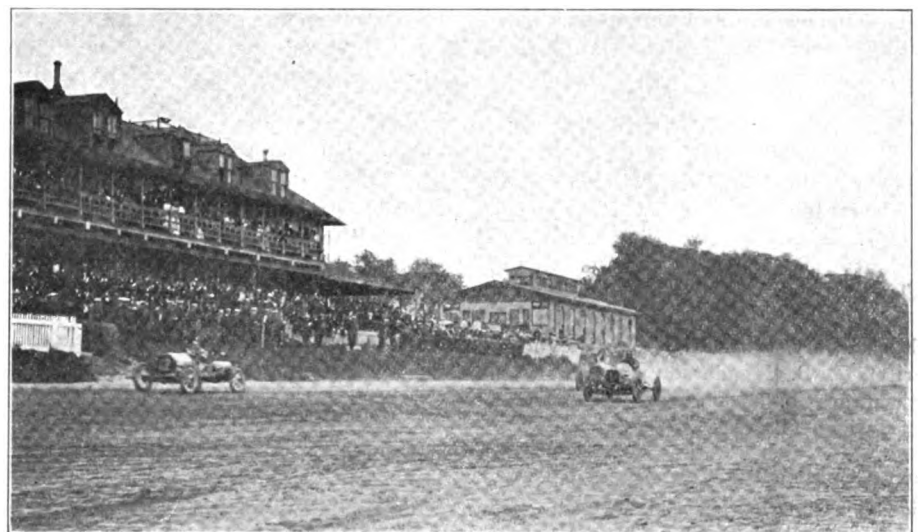
Palma. There had been three entries, but taking a leaf from the book of sad experience as written at Syracuse, Referee Pardington ruled out Joseph Napoli because of the doubtful condition of the right rear tire of the Knox car, which he thought endangered the machine. In the first mile De Palma secured a lead of about 50 yards, which he never relinquished. The 25 miles and the four miles free-for-all also were easy picking for him. In the five miles handicap, De Palma, however, could not overcome the 55 seconds allowed George Parger, Ohio, and the 1 minute and 10 seconds given Willie Haupt, Buick, and he finished third; Parger and Haupt being first and second, respectively.

There were honors for others, however, Jack Tower, at the wheel of an E-M-F, twice showing the way to the small cars. In the five miles for cars under \$1,000 he simply ran away from H. B. Baker, Metz, and Peary, Hupmobile, finishing two sec-

onds ahead of his nearest opponent, and without leaving the track, Tower came



DE PALMA (SIMPLEX) ROMPING HOME IN THE 25 MILES



TOWERS (E-M-F) LEADING ROBERTS (ABBOTT) IN LIGHT CAR RACE

Palma, Simplex, time, 57.70 seconds; second, J. R. Raimey, Cino, time, 1:03.76; third, Irving Bergdoll, Benz, time, 1:04.70.

Five miles, cars under \$1,000—Won by Jack Tower, E-M-F; second, H. B. Baker, Metz; third, Peary, Hupmobile. Time, 6:30.36.

Five miles, cars under \$1,500—Won by Jack Tower, E-M-F; second, W. D. Morton, Kline; third, Mortimer Roberts, Abbott-Detroit. Time, 5:58.93.

Ten miles, cars under \$2,000—Won by J. R. Raimey, Cino; second, Willie Haupt, Buick. Time, 11:35.05.

Ten miles, non-stock, 451-600 inches displacement—Won by Ralph De Palma, Simplex; second, Irving Bergdoll, Benz. Time, 10:42.07.

Twenty-five miles, class E, 161-300 inches displacement—Won by J. R. Raimey, Cino; second, George Parker, Ohio; third, Earl Seachrist, Kline. Time, 28:25.18.

Twenty-five miles, class C, 301-600 inches displacement—Won by Ralph De Palma, Simplex; second, W. D. Morton, Kline; third, Willie Haupt, Buick. Time, 27:22.55.

Five miles, free-for-all—Won by Ralph De Palma, Simplex; second, Irving Bergdoll, Benz; third, J. R. Raimey, Cino. Time, 5:24.18.

Ten miles, free-for-all handicap—Won by George Parger, Ohio (55 sec.); second, Willie Haupt, Buick (1 min. 10 sec.); third, Ralph De Palma, Simplex (scratch). Time, 11:07.77.

Reliability Proves Sociability Run.

Though the run of the Merchants' Protective Association of Burlington, Vt., was scheduled as a Grade 4 reliability contest, when it took place on the 19th, 21st and 23rd inst., it was more in the nature of a sociability tour. The run occupied three days, with a day intervening, starting and finishing at Burlington. Alburgh was the turning point on the 19th inst.; Barre, by way of Montpelier, on the 21st inst., and Rutland on the 23rd inst. With the exception of tire troubles, no mishap occurred. The owners and automobiles participating were: W. B. Johnson (Velie), Dr. W. G. E. Flanders (Flanders), Charles L. Woodbury (Premier), George D. Jarvis (Haynes), Mrs. R. W. Parish (Ford), George D. Sherwin (E. M. F.), H. C. Humphrey (Cadillac), Max L. Powell (Atlas), Burlington Machine & Repair Co. (Stanley), E. A. Brodie (Hupmobile), F. B. Gillett (Stanley), John B. Moquin (Buick), H. S. Morgan (Hudson), Miss Lulu R. Jarvis (Ford), B. L. Kent (E. M. F.), M. J. Daly (Everitt), John Reynolds (Everitt), J. B. Henderson (Regal), Van Ness Garage Co. (Reo), Carl R. Schilhaner of Jericho (Buick).

Kansas Contributes More Queer Rules.

Wichita, Kan., has passed an ordinance requiring motorists to give a signal before starting from a street surbing; they are also forbidden to "back up" more than 20 feet.

OLDFIELD "BUTTS IN" AT DETROIT

"Outlaw" Makes Another Bid for Notoriety—Good Sport Follows One Day Postponement of Racemeet.

Rather than disappoint a vast throng which gathered at the grounds of the Michigan State Fair Association, Detroit, Mich., on the 25th inst., to witness the races promoted by the Michigan State Automobile Association, Robert Burman, Ray Harroun, H. J. Fitzpatrick and other noted drivers gave exhibitions. The races were carded for the 25th and 26th inst., but rain on the morning of the first day made the track dangerous and they were postponed until the 26th and 27th inst. In the exhibitions Burman, driving the Benz, was clocked five miles in 4 minutes and 31 seconds, which is 10 seconds less than the previous "dirt track record." Burman also started to tear off a 50-mile exhibition, but was interrupted by the appearance on the course of Barney (Berna) Oldfield. Chairman Butler of the A. A. A. ordered Oldfield off, but the latter drove once around the track before submitting. Butler characterized the event as "a try for cheap notoriety," and intimated that the end had not been heard of it.

Frank Kulick, at the wheel of a Ford, secured all the honors when the meet really began on Tuesday, 26th inst., for he not only proved fastest on the one-mile time trials, covering the distance in 50 seconds, but he won two of the three races in which he started. In the time trial he was 1½ seconds faster than Burman. Afterward Henry Ford, manufacturer of the car which Kulick drove, gave him \$1,000 with the remark, "Frank, take this, I don't want you to do any more racing. When a man covers a mile on this track in 50 seconds it is too fast on any other track." The five miles, free-for-all handicap, showed some fine handicapping. L. Soules, Flanders, with 55 seconds, won. He was followed closely by Frank Witt, Flanders, who also had 55 seconds, and Frank Kulick, Ford, 22 seconds. Kulick was close the entire distance, but could not overcome the handicap. The time, 5:32, was slower than he made in the first two races at five miles for small cars. They were, 4:52½, and 4:55½ respectively.

Tuesday, September 26.

Five miles, Class C, under 300 inches displacement—Won by Frank Kulick, Ford; second, Joe Jagersberger, Case; third, Lou Heineman. Time, 4:52½.

Five miles, Class C, under 231 inches displacement—Won by Frank Kulick, Ford; second, H. J. Borusch, Warren-Detroit; third, Bill Smith, Abbott-Detroit. Time, 4:55½.

Five miles, free-for-all handicap—Won

by L. Soules (Flanders), 55 seconds; second, Frank Witt (Flanders), 55 seconds; third, Frank Kulick (Ford), 25 seconds. Time, 5:32.

One mile time trial, standing start—Won by Frank Kulick (Ford), time, 50 seconds; second, Robert Burman (Benz), 51½ seconds; H. J. Kilpatrick (Hotchkiss), 56 seconds.

Ten miles, Australian pursuit—Won by Robert Burman, Benz; second, J. McNay, Benz; third, H. J. Kilpatrick, Hotchkiss. Time, 9:01½.

Three miles match, Ray Harroun, Marmon, vs. Lou Heineman, Case—Won by Harroun.

Three miles match, Robert Burman, Benz, vs. H. J. Kilpatrick, Hotchkiss—Won by Burman. Time, 2:48¾.

Two miles time trial—Robert Burman, Benz. Time, 1:43¾.

Five miles match, Frank Witt, Flanders, vs. L. Soules, Flanders—Won by Soules. Time, 5:44.

Three miles match, Ray Harroun, Marmon (scratch), vs. Joe Jagersberger, Case (½ mile)—Won by Harroun.

Five miles, with change of tire—Ray Harroun, Marmon. Time, 5:40.

Twenty miles time trial—Robert Burman, Benz, 17:57¾.

De Palma and Hobble Skirt at Hartford.

There was a hobble skirt race at the race-meet of the Automobile Club of Hartford, at Charter Oak Park, Hartford, Conn., on the 21st inst., and the man who won it still lives. Automobile races were to have marked the closing of the Connecticut State Fair on the 9th inst., but on account of the bad condition of the course, were abandoned. The Automobile Club then took up the matter and arranged a program of seven races for the 21st inst. Only two of them filled, however, and in order to give the 3,000 spectators their money's worth, a hobble skirt race, a potato race, and several motorcycle events, also a parade of 1912 automobiles, were added. These and Ralph De Palma and his two racing cars—the Simplex and the Mercer—afforded fairly good sport.

The summary:

One mile exhibition by Ralph De Palma, Simplex. Time, 0:52¼.

Potato race—Won by William Miner, Pierce-Arrow; second, Al Peard, Firestone-Columbus; third, John James, Maxwell.

Five miles, non-stock, Class C—Won by Ralph De Palma, Mercer; second, G. P. Brainerd, Cole; third, John F. Beach, Mercer. Time, 5:19½.

Five miles exhibition by Ralph De Palma, Simplex. Time, 4:23.

Five miles, free-for-all—Won by Ralph De Palma, Mercer; second, G. P. Brainerd, Cole; third, John F. Beach, Mercer. Time, 5:14.

Fifteen miles exhibition by Ralph De Palma, Simplex, abandoned at end of 12 miles.

RACING MEN LET LOOSE A SCANDAL

Moross Charged With Requiring Contract Shielding Burman from Defeat—Drivers Discuss Racing Safeguards.

At the last meeting of the Motor Racing Drivers' Association of America, which was held in New York on Wednesday evening, 20th inst., one of the principal topics discussed was the disaster which occurred at the Syracuse racemeet, and the best methods of preventing such accidents. The most astounding thing that was brought out, however, was that at the Labor Day meet at Brighton Beach at least one of the drivers actually was under contract not to win the races in which he competed in order that Robert Burman might not be defeated. Subsequent questioning by a Motor World representative of the man who made the charge resulted in his repeating it, but he declined to be quoted on the subject or to permit his name to be used.

He signed the contract, he said, thinking it was largely a joke, owing to the fact that the combination of Burman and his Benz against which he would race had almost a national reputation for speed, and he felt that as in his estimation there was no possible chance for him to win, in any case there was no harm done in signing the document. Later, according to his own story, he discovered that his mount really was capable of much greater speed than he had expected and he promptly announced to Burman his intention of beating him, "and beating him proper, contract or no contract."

It was then that the fur commenced to fly. Burman held a consultation with his manager, E. A. Moross, who also was the promoter of the meet, and as the cars were being taken out of the paddock the manager climbed onto the insurgent's car, and switching off the ignition current himself, informed the driver that he was free to leave the track. After denouncing Moross in no uncertain terms, and refusing to appear at the Syracuse meet, for which he had been booked by Moross, he left the track. Burman won the race, a five-mile handicap.

Another matter which came up before the meeting, and one which has been more or less the principal subject discussed at all the meetings of the organization since it first saw the light of day, was the question of the segregation of racing drivers into classes according to their experience. It may be remembered that at the meeting of the rules committee of the Motor Contest Association held in Detroit a short time ago, George Robertson, president of the Racing Drivers' Association, recommended that drivers be divided into three classes, first class, second class and amateur, the first class to include only such drivers as

had "gone through the mill" and proven their ability to handle fast cars in big races, while the second class would be composed of drivers who had just entered the professional ranks and still had their spurs to win. After they had demonstrated that they could drive to the satisfaction of a committee composed jointly of officials of the American Automobile Association and the Motor Racing Drivers' Association they would be permitted to compete in the same races as those in which drivers of the first class were entered.

The recent fatality at Syracuse, which has been proven to have resulted largely from the inexperience of the driver, "Lee Oldfield," could not have happened, according to Robertson, or at least the likelihood of the happening would have been materially lessened had only experienced drivers been permitted to start in the race. Briefly, it is the exclusion of inexperienced drivers, for the protection of the public and the drivers themselves that the association is working for and it is not unlikely that before many moons the A. A. A. will amend its rules to conform with the suggestions made by the Racing Drivers' Association in this respect. The identity of the so-called "Lee Oldfield" also was discussed at the association's meeting, and though it is known that his name is not Oldfield, his correct name had slipped the memory of the one man who had known it.

The meeting was attended by about a dozen prominent drivers, among whom were Geo. Robertson, Louis Disbrow, Hughie Hughes, Glen Ormsby, Charles Lund, Harry Hartman and Leland Mitchell, and after the serious business of the evening had been disposed of the meeting was changed into a theater party. A production entitled "Speed" was witnessed.

Boursch the "Whole Thing" at Galesburg.

H. G. Boursch was the "whole thing" at the Galesburg (Ill.) meet on the 20th inst. He drove a Warren-Detroit and bagged two of the three events which constituted the program. The event which escaped him was not a speed contest, but a slow race on high gear in performing which stunt Buram (Franklin) proved most expert. The summary:

Ten miles, free-for-all—Won by Boursch (Warren-Detroit); second, Wonderlich (Marquette-Buick); third, Hobbie (Buick). Time: 11:09½.

Slow mile on high speed—Won by Byram (Franklin), 11:31½; second, Hjerpe (Carter), 11:09.

Five miles, free-for-all—Won by Boursch (Warren-Detroit); second, Hobbie (Buick); third, Nelson (Illinois). Time, 5:03½.

Chicago Contest Deferred Three Weeks.

Although having 10 entries and a promise of 14 others for its 1,000 mile reliability contest, October 6 to 13, the Chicago Motor Club has concluded to postpone the event until October 27-November 3.

MANY NOTED DRIVERS CHANGE CARS

Surprising Shifts Disclosed in Make-up of Teams for Fall Road Races—Grant Does Not Retire.

"Change cars" at present seems to be the slogan of a by no means small proportion of the clan of racing drivers. Seldom before has such a number of changes been recorded at one time. The first of the changes will become apparent when Harry Grant, who won his fame at the wheel of an Alco, is seen in a Lozier at the Fairmount Park race, on October 7. Similarly, the Santa Monica races out in California, on October 14, will disclose changes in several of the teams which have been entered. The Marmon team shows the greatest number of converts of them all. Ray Harroun, of Indianapolis Speedway fame, will be in charge, but he will do no racing, and of course Joe Dawson will pilot one of the yellow cars. As to the others, all are new to Marmon cars. William Endicott used to be a very consistent driver of Cole cars, but he has left them, temporarily at least; Joe Nikrent has been seen most at the wheel of a Knox, but he, too, will pilot a Marmon; Cyrus Patschke is the fourth driver, but he is not exactly new to the Marmon team, as he drove Harroun's winning car part of the way in the 500 miles race at Indianapolis on Decoration Day.

Johnny Jenkins stays with the Cole team for the Western races, but he has a new team mate in the person of Harvey Herick, who last year made quite a name for himself with a Kissell. Howard Wilcox, familiarly dubbed "Howdy," and Charles Merz apparently are inseparable from their National mounts; they both will start in the Santa Monica, but John Aitken, it is said, will race no more. Len Zengle and Don Herr will, however, amply fill the breach. The Fiat teams for the Vanderbilt and Grand Prize races at Savannah in November also show a number of changes and one recruit. Teddy Tetzlaff, who leaped into fame and glory with a Lozier at Santa Monica last year, is the new addition, and he, with David Bruce-Brown and E. H. Parker, will drive Fiats against the field for the Vanderbilt cup. Bruce-Brown last year won the Grand Prize race with a Benz, but this year he will have a specially constructed Fiat which he will drive in both races. Felice Nazzaro and E. H. Parker are the second and third members of the Fiat Grand Prize team.

Lowell Road Races Abandoned.

There were no road races nor any other races at Lowell, Mass., on the 23rd inst. The supposed fixture had been inadvertently carried on the A. A. A. sanction list, although none had been asked for nor granted.

BROKEN BRIDGE HALTED TRUCKS

Chicago Demonstration Illustrates Truck Reliability and Bridge Weakness—
Twenty Clean Scores.

It was over far worse roads than marked the routes of the two previous days' journeys that the remaining 28 trucks in the Chicago Motor Club's commercial vehicle demonstration were forced to run on Wednesday, 20th inst., the third and last day. In spite of the very rough roads, made slippery by rain, only one other truck was penalized, 24 of them finishing the three days' journey of about 200 miles with their road scores unblemished. The Sampson, driven by Hugh Kranskey, was the one to incur a road penalty on the last day; 10 points were meted out to it because the driver replaced a bolt in a torsion rod. As a result of the technical examination which was made at the end of the third day, four hitherto perfect scores were marred, leav-

ing a total of 20 perfect score vehicles out of the 32 which started in the run on Monday, 18th inst.

The four which suffered by the technical examination were No. 8-Krickworth, No. 3-Clark, No. 17-Lauth-Juergens, and No. 18-Decatur. The Krickworth was debited 100 points for a broken spring hanger and a bent tie rod sustained when the car skidded into a trolley car on the second day's run. On the final day's run, the Lauth-Juergens ran into a deep ditch and two spring leaves were broken, for which 10 points was charged. The Clark also got into difficulties on the last day, a fractured brake connection and a broken spring resulting in 105 points penalization. The Decatur lost 30 points for broken spring shackles, this damage also being caused on the last day's run. No. 5-Sampson and No. 14-Adams each were assessed five points for clutch troubles.

The return from Chicago Heights, at which place the noon control was located, was very much more difficult than the morning run from Chicago, and it was during this part of the journey that the

only accident of the three days' contest occurred. Driven by Fred Berger, and well in front of a large part of the procession, Saurer truck No. 33, the biggest and most heavily laden of them all, crashed through the woodwork of a bridge and came to rest "hub deep" on the iron girders. It was not till two hours later, after the six ton load of sand had been removed and the truck dargged out of the hole, that the contest was able to go on. As the defect was in the bridge rather than in the truck, no penalization was incurred.

Of course the horse-drawn truck which "competed" with the motor trucks was overwhelmingly defeated; it took the horses two whole days to drag two tons of sand over the same route that the motor trucks covered in less than one day. It certainly did compete, however, as it was designated "No. 13," and in addition was subjected to a technical examination. With the horses walking, the foot brake (according to the official score sheets) stopped the truck in 15 feet, while with the horses trotting the truck was stopped in 28 feet. The complete scores are as follows:

SUMMARY OF RESULTS OF CHICAGO MOTOR CLUB'S TRUCK DEMONSTRATION, SEPT. 18-20

501-1,000 Pounds Capacity						Brake Test			Penalization					
No.	Truck	Driver	Bore and Stroke	Cyl.	Weight Empty	Weight of Load	Miles per Hour	Foot Brake	Distance Hand Brake	Distance				Total
										1st Day	2nd Day	3rd Day	Tech. Exam.	
1—	Mercury	Joe Alkofer	4½x4	2	1,810	1,040	12	18	25	0	0	0	0	0
2—	Mercury	William Lott	4¼x4	2	1,840	1,050	12	32	23	0	72	0	0	72
1,001-1,500 Pounds Capacity														
4—	Buick	Albert Easterday	4½x5	2	2,680	1,780	11	20	27	0	0	0	0	0
6—	McIntyre	C. A. Thomas	4½x5½	4	2,830	1,395	11	41	32	0	0	0	0	0
7—	Crown	Theo. Hall Nagel	3¾x4½	4	2,860	1,655	11	29	49	0	0	0	0	0
5—	Sampson	Hugh Kranskey	4¾x4¾	2	2,860	1,505	11	24	35	0	0	10	5	15
8—	Krickworth	J. M. Worth	5 x5	2	2,710	1,717	11	27	31	0	0	0	100	100
3—	Clark	Eugene Odin	3¾x5	4	3,175	1,595	11	28	53	0	0	0	108	108
1,501-2,000 Pounds Capacity														
9—	Clark	McCue	3¾x5	4	3,400	2,100	11	28	20	0	0	0	0	0
10—	Clark	L. Wallwork	3¾x5	4	3,520	2,120	11	43	30	0	0	0	0	0
11—	Le Moon	A. R. Le Moon	4 x4	4	3,400	2,080	11	24	25	0	0	0	0	0
12—	Little Giant	E. W. Alpin	5 x4	2	2,780	2,080	11	45	50	0	0	0	0	0
16—	L.-Juergens	William Juergens	4 x4	4	2,330	2,100	11	25	34	0	0	0	0	0
20—	Chase	Mraz	4½x4	3	2,630	2,770	11	26	25	0	0	0	0	0
17—	L.-Juergens	F. W. Herrick	4 x4	4	3,500	2,100	11	24	27	0	0	0	10	10
14—	Adams	C. C. McLean	3¾x5	4	3,785	2,075	11	35	40	0	6	0	5	11
18—	Decatur	R. S. Matoon	4 x4	4	3,940	2,150	11	18	36	0	0	0	30	30
15—	Swanson	C. V. Severin	Withdrawn											
19—	Monitor	C. M. Barnikow	Withdrawn											
2,001-3,000 Pounds Capacity														
21—	McIntyre	William Smith	Withdrawn											
3,001-4,000 Pounds Capacity														
22—	Stegeman	Oscar Stegeman	4½x5½	2	5,050	4,270	8	11	15	0	0	0	0	0
23—	Reliance	J. S. Carney	5 x5	2	5,830	4,145	8	10	23	3	316	0	0	319
4,001-5,000 Pounds Capacity														
24—	Mais	T. S. Davies	4 x5½	4	6,720	5,115	7	4	13	0	0	0	0	0
5,001-7,000 Pounds Capacity														
25—	Alco	F. T. O'Mara	5 x6	4	8,745	7,155	6	7	10	0	0	0	0	0
26—	Old Reliable	F. L. Kline	4¾x5½	4	7,975	7,190	6	7	13	0	0	0	0	0
27—	Dayton	Haines	4¾x5½	4	7,450	6,060	6	10	13	0	0	0	0	0
28—	Pope-Hartford	James L. Russell		4	7,330	6,110	6	11	16	0	0	0	0	0
7,001-10,000 Pounds Capacity														
29—	Saurer	F. C. Atwell	110x140mm.	4	6,790	9,140	6	9	13	0	0	0	0	0
30—	Stegeman	William Stegeman	4½x5½	4	8,215	8,125	6	11	11	0	0	0	0	0
31—	Sampson	H. Shires	5 x5½	4	10,800	10,100	6	8	20	0	0	0	0	0
32—	Alco	Thomas Rooney	Withdrawn											
10,001-15,000 Pounds Capacity														
33—	Saurer	Fred Berger	110x140mm.	4	8,380	13,145	5	4	3	0	0	0	0	0

MOTORIZING NEW YORK'S FIREMEN

Ousting of Horse-Drawn Apparatus Under Way, Education of the Men Begins—
The School of Instruction.

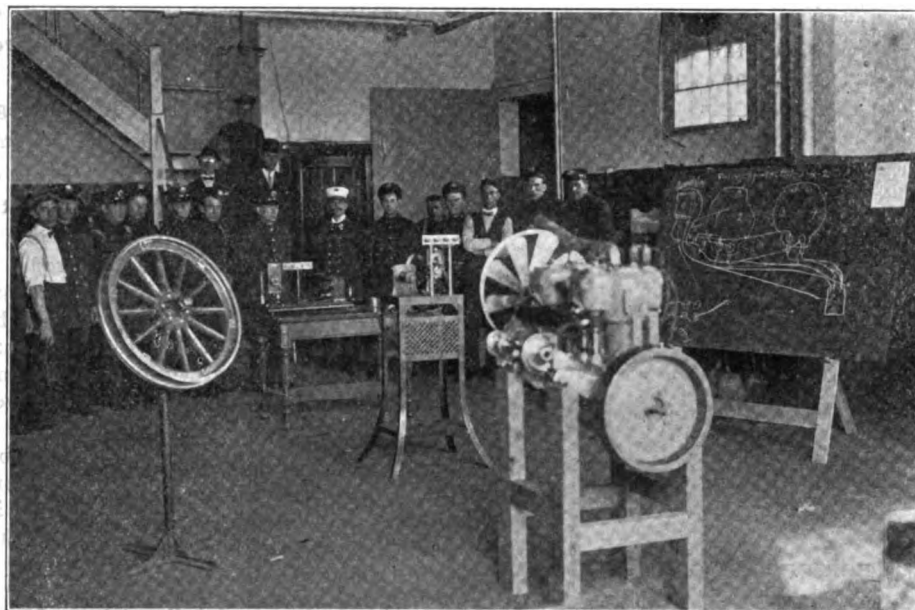
Having definitely decided to replace its horse-drawn apparatus by motor driven vehicles, the New York Fire Department is losing no time in preparing a number of its men for the duties which will be imposed upon them with the complete installation of the new apparatus. The com-

firemen in which they are taught the mysteries of gasoline motors, magneto ignition and the handling of the steering wheel.

This school, which is depicted in the accompanying photographs, is located in the big building at the corner of Twelfth avenue and 56th street, New York, where all repairs to the department's steam engines, ladder trucks, water towers, etc., are performed. On the second floor one of the rooms has been fitted up as a schoolroom with two blackboards and tables or demonstrating stands on which motors, dynamos, pumps and magnetos are exhibited; at

It is the intention of the department to develop not only a sufficient number of competent drivers for the new engines to be delivered during the next year, but chiefly to make every man, if possible, acquainted with the construction and handling of gasoline motors and engines, so that in case of accident to one or more of the regular men there would be always a number of others ready to fill any emergency that may arise.

Three members of the New York depart-



GENERAL VIEW OF FIREMEN'S SCHOOL AND ITS EQUIPMENT

missioner does not intend to be forced to look for chauffeur material beyond the personnel now under his orders, and with this idea in view has established a school for

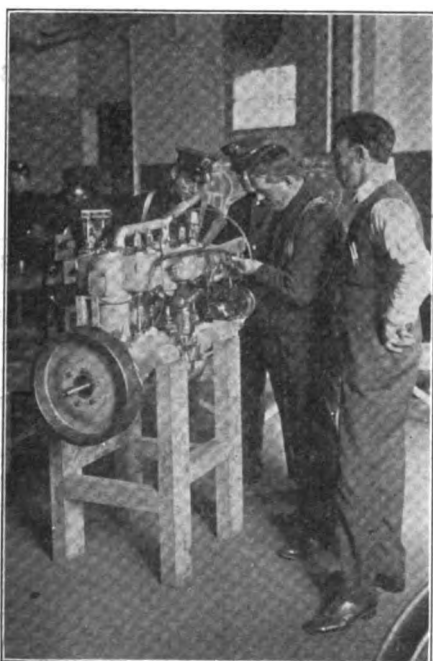
one end of the room there is one of the red "F. D." runabouts with hood removed and motor partially dissected, while all around the place are other evidences of a real "chauffeurs' school."

Captains and lieutenants regularly report to headquarters the names of men who show either special mechanical aptitude or a particular desire to become chauffeurs, and the officials at headquarters each month choose about fifteen of these men and assign them to school duty. While drivers are preferred, if they show the necessary abilities, the school course is not restricted to them, and any member of the department, regardless of his present duties, may make application for a chauffeur's position. The course lasts one month, with daily instruction of three hours in theoretical and practical repairing, reconstructing and assembling motors, magneto lore and the handling of demountable rims, and in driving one of the new engines of the department through city streets. As soon as one squad has finished the course, another starts, so that by next summer the department expects to have about 200 men capable of running the new apparatus. A civilian has been employed by the Fire Department to teach these men, the present incumbent being Frank E. Butler.



THE FIRST ROAD LESSON

ment at present are on an extended tour of the Middle West, where they are examining various makes of fire engines and arranging for deliveries next year.



MAKING PLAIN IGNITION PROBLEMS

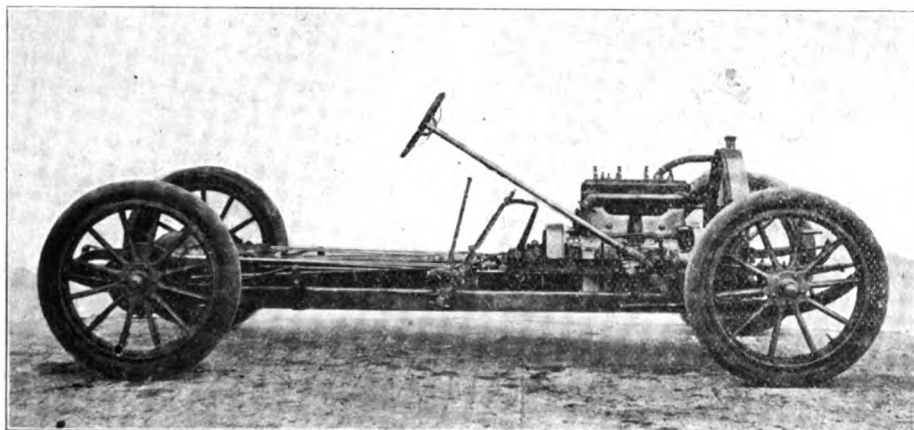


DEMOUNTABLE RIM INSTRUCTION

COLBY WITH UNDERSLUNG FRAME

Iowa Manufacturer Adds Popular Priced New Model to Line—Characteristics That Distinguish It.

As the leader for its 1912 line, the Colby Motor Car Co., of Mason City, Iowa, has brought out a 30 horsepower underslung car, known as Model L, while at the same time continuing its 40 horsepower Model H, of more conventional spring suspension. While the price of the Model H remains at \$1,750, the new Colby "30" underslung Model L, with five passenger touring car body, four passenger touring car body, or



THE NEW COLBY UNDERSLUNG 30 HORSEPOWER CHASSIS

two passenger roadster body, lists at \$1,250, although in three passenger coupe form it bears a body of such complete and elaborate coupe detail as to bring the price up to \$2,250. Indications of the generous proportions of the underslung model are manifest in the fact that 36 x 4 tires, on demountable rims, are used, the wheelbase being 116 inches and the road clearance a full 11 inches.

A four cylinder water cooled motor, having 4 1/16 x 4 1/2 bore and stroke, is used for the new car. The cylinders are cast en bloc, with enclosed valves and with inlet manifold cast integral. The motor is lubricated by a cam-driven plunger pump in the crankcase. For the ignition, the Splitdorf dual ignition system, embodying magneto and battery, is employed, the spark plugs being located over the intake valves. The radiator is very large, of the square tube variety, located on an extra cross member of the frame in front of the one that carries the subframe. Circulation is by centrifugal pump on the left side of the motor, the pump shaft being an extension of the magneto shaft. The fuel tank is under the front seat, and feeds to the 1 1/4 inch Stromberg carburettor by gravity. In the clutch a pressed steel cone, with pilot springs, is utilized.

The control levers are on the right side, with the shifting lever inside the body and the emergency brake lever on the outside.

The foot pedals are located on either side of the steering post, with accelerator between and the muffler cut-out at one side.

Special pride is taken by the Colby company in the rear system, the transmission gear being located on the rear axle. Combining the functions of torque and strut rods, the torsion tube extends forward to a yoke around the universal joint. Torque and driving strains are sustained by heavy brackets securely riveted to the frame and forming the rear subframe hangers. In addition to the heavy torque tube, the axle is braced with two radius rods which extend to the pins on which the yoke turns. The transmission is of a very light, compact type, and the cover plates of both rear axle and transmission are readily re-

movable to give free access to the gears. Service and emergency brakes are of the external-internal type, operating on the same brake drums, which are 2 1/4 inches wide and 12 inches in diameter, equipped with non-burning brake lining. The whole rear axle, which is of the semi-floating type, is full ball bearing. In accordance with the underslung construction, semi-elliptic springs are used for both front and rear.

Little or no change has been found necessary in the 40 horsepower Model H, which made its appearance for 1911 last December. The standard closed front touring car is maintained at \$1,750, but with a Colonial limousine body the Model H lists at \$3,500. The company is represented in the commercial vehicle field, as well with one and one-half and five ton trucks, in order that its line of pleasure and commercial cars may be completely rounded out.

When Brakes Require Equalization.

When it becomes necessary to reline one of a pair of brake shoes, great care should be taken to see that the brakes afterward are properly equalized. If they are not equalized, or rather adjusted, undue strain will be thrown on the differential mechanism, and in addition one tire, on which practically all the strain will be put, will wear rapidly.

SLIDING SCALE FOR TRUCK BUYER

Packard Evolves One to Promote Quantity Purchases—Basis of System and How it Works Out.

As in the case of all merchandising involving quantity, buyers of motor trucks have been accustomed to seek special concessions in price where their orders have involved a number of trucks rather than a single vehicle, but it has remained for the Packard Motor Car Co., of Detroit, Mich., to provide a definite sliding scale of quantity discounts from the prices asked for single trucks.

The obvious purpose of the sliding discount system announced by the company is to make the price concession for quantity a definite and open arrangement with retail buyers instead of having it a matter of private dicker and bargain that might be variable according to the shrewdness and bargaining faculty of the buyer. It is also a recognition that the quantity buyer may be regarded as properly entitled to slightly better prices than if he were to buy but one truck.

In stating its plan whereby "all buyers may have the same proportionate benefit," the Packard company indicates that it has fixed its sliding scale of prices on the following basis:

"Orders for single trucks will be filled only at the regular list prices—\$3,400 for the 3-ton chassis and \$2,800 for the 1 1/2-ton chassis. Orders for several trucks to be delivered and paid for at the same time will entitle the purchaser to a percentage reduction in price equivalent to the number of ordered trucks multiplied by the constant .0015. Thus, on an order for ten 3-ton truck chassis, the price will be calculated as follows:

Ten chassis at \$3,400.....	\$34,000
Percentage reduction equals number of chassis (10) multiplied by constant .0015, which is .015, or 1.5 per cent. of total list price (\$34,000)	510

Net price of ten chassis.....\$33,490

Net price of each of ten chassis...\$ 3,349

"When a number of trucks are ordered for delivery in instalments within a specified period, the reduction allowed upon the successive instalments will be cumulative, so that at the completion of the entire order the purchaser will have received upon all trucks a maximum reduction the same as on a unit order for an equal number of trucks"

The system applies uniformly in establishing the prices for all orders of from 2 to 50 trucks, the latter number being the point of maximum reduction. The quantity prices apply to chassis only, the list prices on bodies being net regardless of quantity.

KNIGHT HONORED ON NATIVE HEATH

Inventor Banquetted and on Lecture Platform Tells of His Struggles and His Engine—Answers Some Questions.

When Charles Y. Knight returned to America on a visit last Saturday, 27th inst., for a short stay, it was entirely in keeping with the scheme of things that he should be carried from the steamship dock to his hotel in a car equipped with an engine of his own invention. In company with his partner, his counselor and representatives from the F. B. Stearns Co., the Dayton Motor Car Co., the Columbia Motor Car Co., and the Atlas Engineering Co., American licensees under the Knight patents, he was whisked to his temporary place of abode in a Stearns-Knight car and since then his life has been as strenuous and as full of speechmaking and banqueting as ever was a presidential candidate's. His engine was conceived and first exploited in this, his native land—he was born in Indiana—but it was not until he took it abroad that it found honor, and for the first time he returned here to find his invention recognized and honored by other Americans; he had "come into his own," so to speak.

Officially, the inventor's round of activity commenced on Monday night when he was tendered a dinner at the New York Athletic Club by Frank E. Lonas, attorney for the Knight & Kilbourne Patents Co.; on Tuesday evening, he lectured at the Automobile Club of America, before a body composed chiefly of the Metropolitan section of the Society of Automobile Engineers, and on Wednesday he jumped to Pittsburg and continued his educational-lecture tour, which will be repeated in three other cities. Sandwiched between lectures and dinners have been visits to the manufacturing plants of American licensees, consultations with a view to increasing the productiveness of these licensees and a host of other engagements, all of which must be settled in record time in order to allow Knight to return to England early next month.

The dinner on Monday night was in the nature of a greeting to the returned inventor. It was attended by representatives of all the American licensees under the Knight patents, including Engineer J. G. Sterling, Associate Manager Hadley, H. H. Hower and W. Arthur Lesser of the F. B. Stearns Co., Horace De Lisser, J. W. Wellington, Alfred Reeves, Montgomery Halliwell, F. E. Dayton, R. T. Houk, H. V. Nichols, Rue De Lisser, Carl Tucker, Gridley Adams and Harry Broner, representing the Columbia and Stoddard-Dayton interests; H. J. Halle, F. H. Baker, Louis Switzer and R. B. McMullen, of the Atlas Engineering Co.; A. Massenet, American repre-

sentative of the Panhard-Levassor Co., and E. Lilly. J. E. Ryan, who has had charge of the American publicity for the Knight interests for several years, was toastmaster, and he was flanked by Counselor Lonas and L. B. Kilbourne and Consulting Engineer W. Owen Thomas, of the Knight & Kilbourne Co.

Naturally, Knight's address was the principal event of the evening, though Mr. Lonas said much that served to convey to those present the difficulties which had to be overcome and the extremely rigorous tests which were required by the foreign manufacturers before they finally consented to adopt the Knight sleeve valve motor. Following Lonas's remarks, Toastmaster Ryan introduced Mr. Knight with the usual flow of scintillating wit for which he has acquired an almost national reputation.

Knight's talk occupied more than an hour, and for the most part consisted of a recital of the events which led up to his invention of the sleeve valve engine which bears his name. Virtually he told the story of his life. He told of his first invention, which was a printing press, and of his second, which was a country newspaper. His third invention was a statement of circulation and somewhat whimsically he added that in his estimation it was the most successful of the three. Some years later, having ridden in an automobile which was far from quiet, he decided to turn his attention to the organization of a really silent motor and after years of study and experimenting the Knight sleeve valve engine was produced.

In appearance Knight suggests more of the successful capitalist than the inventor. He is fairly tall—and also fairly rotund—and smooth-faced, and boasts the ruddy complexion of which Britons are proud. He talks convincingly and though there are traces of English inflection apparent at times, as evidenced by his pronunciation of the word patent in true British style with an A as in plate, his manner of speech on the whole is distinctly of Chicago in the clear enunciation of very hard r's.

In the course of a few brief remarks, it was brought out by Horace De Lisser, of the United States Motor Co., that while his company did not object to the action of the Knight-Kilbourne interests in placing the production of Knight engines for the open market in the hands of the Atlas Engineering Co., it did not agree to the wisdom of the plan. The Atlas Engineering Co., of Indianapolis, was the latest, and in all probability will be the last American licensee under the Knight patents. De Lisser explained the reason for the attitude of the United States Motor Co., by saying that it was possible that the Atlas company might allow Knight engines to fall into the hands of car builders who would not sustain its reputation. For this reason he suggested that great restrictions should be placed on the Atlas Engineering Co. regarding its disposal of the motors.

Later, the Atlas representatives gave assurances on this very point.

After even briefer speeches by practically all of the others present, the gathering broke up and each of those present carried away with him two extremely clever souvenirs of the occasion. The first of them was the menu, which was printed in a perfectly working model of the Stearns-Knight engine in cardboard. By a neat arrangement of tiny gear wheels and coloring the whole of the valve mechanism of the engine was shown in its working relationship to the piston. The other was a "motion picture" of the Columbia-Knight engine, the illusion of the engine in operation being obtained by allowing the pages of a small booklet to flip over rapidly under the thumb.

The gathering which greeted the inventor in the lecture room of the Automobile Club of America on Tuesday evening was several times larger than that which was on hand the previous night and it was there that Knight really got down to a technical treatment of his engine. After a lengthy preamble in which he recounted the enormous increases in profits which have been made by those foreign manufacturers who have taken up the manufacture of the Knight engine, he repeated what now is history regarding the severe tests to which the Royal Automobile Club of England submitted the engines. Two of them, one of 22 horsepower, and the other 38 horsepower, were run continuously for 132 hours, pulling one and one-third times their rated powers. Then, after having been run 2,000 miles at 40 miles an hour on Brooklands track in touring cars, carrying a full complement of passengers, they were dismounted and tested on the bench for five hours and showed respectively 39 and 59 horsepower. Though they had been run the equivalent of 10,000 miles, they showed no appreciable wear. Indicative of the small amount of wear which actually takes place, Knight cited one instance where one of his engines had been run 100,000 miles and still showed no signs of wear, and opined that had it been run 1,000,000 miles the wear would not have been greater.

The most interesting part of his description pertained to the lubrication of the engine. Contrary to the general idea, he said, the greatest problem was not to provide efficient lubrication, but to prevent over lubrication. The splash system is relied upon entirely, and the method of oiling the eccentric sleeves is unique. Owing to the partial vacuum caused by the suction of the piston the oil which clings to the bottom of the sleeves is drawn up between them and distributed evenly over them by means of under-cut grooves in their peripheries. The older method of using an auxiliary oiler to force oil on top of the pistons has been discarded.

The discussion which followed the lecture was exceedingly meagre and was confined to half a dozen questions, some of

THE MOTOR WORLD

which already had been answered though Knight good naturedly went all over the ground again. In the course of the lecture he had stated that approximately two horsepower was required to operate the sleeves in a six-cylinder motor and asked the power required to drive the poppet valves in an engine of similar size stated that owing to the fact that he had never had opportunity to test a poppet valve engine of similar size he could not say. The oil best suited to the sleeve valve engine, he stated, in answer to a question, was identical with that used in poppet valve motors; he refused to state the clearances between the sleeves and the cylinder walls and the piston on the ground that it was a "state" secret. He did admit, however, that it varied according to the bore of the cylinders.

After a long pause, during which no more questions were forthcoming, Knight thanked the audience for its close attention, and with evident relief, retired, later to join the gathering at a "Dutch" provided in the grill room by the Automobile Club of America.

Germans Declare a Cruel, Cruel War!

While war between Germany and France, according to reliable information, actually has not been declared by the German Emperor and his ministers, German motorists and cyclists have been called on to throw themselves at the Michelin Tire Co., which, as most people know, is a French enterprise. And all because the Michelin company, in its humorous cartoons and caricatures of people of note, far from tickling the German funnybone, offended it. At least that is what the president of the Deutscher Radfahrer Bund and the president of the Allgemeiner Automobil Club claim the company has done, and they are very sore about it, too. In an official and signed announcement these two leaders demand that every loyal German automobile owner, motorcyclist and bicyclist, henceforth shun the Michelin product as he would the Evil One himself; for the French company has "dared to insult the national feeling of the Germans, to caricature the person of their emperor and to launch unheard-of attacks against Germanism and German industrial progress"—"and this," the manifesto goes on to explain, "despite the fact that millions of good German money have been paid for the tires made by this firm." The call to arms closes with a demand for instant and absolute boycott of the company's products. The "proclamation" is said to have caused Michelin's "Bibendum twins" to shake more vigorously than usual.

T. Geddes Grant, who is described as one of the wealthiest residents of Trinidad, has secured the Velie agency for that tropic island. Grant, who represents a large number of American enterprises, makes Port au Spain his headquarters.

S. A. E. TRIP ASSUMES IMPORTANCE

Visit to Europe Now Assured and Interest Added to Program—Some of Those Who Will Go.

Giving every indication of their enthusiasm over the projected trip to Europe under the auspices of the Society of Automobile Engineers, the members of that organization are responding to a degree that bodes well for the size and success of the undertaking. Already a great many have indicated their positive intention of making the trip, while an even larger number have put themselves on record as intending to go if possible. Although the Olympia automobile show in London is to be the main attraction for the members, the program that is being developed in connection with their visit has been brought to a point that renders it of international interest.

Leaving New York about the first of November, the visitors are to arrive in London on November 7th, and three days will be available for visiting the Olympia show. On November 8th there will be a joint technical meeting with the English automobile engineers, at which meeting an S. A. E. member will present a paper. An entertainment will be given the visitors on November 9th by the Incorporated Institution of Automobile Engineers. November 10th is set aside for a trip to Birmingham, to see the factories of the Austin Motor Co. and the Wolseley Motor Car Co., while on November 11th the Daimler Motor Co.'s plant at Coventry will be visited. On the same day the British Society of Automobile Engineers will give the S. A. E. members a dinner. Sunday, the 12th, will be the day for an automobile run through the Warwickshire district and to Stratford-on-Avon.

After visiting the Humber factory on the 13th, the members will be given an opportunity, on the 14th, to inspect the garages of the biggest London taxicab companies, and on the evening of that day there will be a technical session held by the Institution of Automobile Engineers, with reading of papers and discussions. The next two days, November 15th and 16th, have been set aside for a visit to Newcastle-on-Tyne, the home of the Armstrong Whitworth factory. The succeeding day will afford a program of special racing events at the great Brooklands motordrome, of a kind calculated most to interest the engineers.

The departure for France, on an excursion to the French automobile factories, is scheduled for Saturday, the 18th, and on the 20th the pilgrims will be given the somewhat rare privilege of going through the Panhard et Levassor plant, in Paris, while on the following day they will be shown the Delaunay Belleville factory at

St. Denis. In addition to what is thus provided for, it is probable that visits will be made to the South Kensington Museum in London, the testing laboratories of the Royal Automobile Club of England, and of the Automobile Club of France, the Conservatoire des Arts et Metiers, and the Clement and DeDion plants in France. Factories making commercial vehicles as well as pleasure cars, and those making moderate priced as well as the highest priced cars will be visited. Altogether the trip, including the return journey home, will take about the whole month of November.

The following, many of them to be accompanied by their wives, have signified their intention of making the trip:

Henry Souther, president of the S. A. E.; Howard E. Coffin, past-president of the S. A. E.; D. G. McDiarmid, superintendent and designer, C. P. Kimball & Co., Chicago, Ill.; William E. Metzger, secretary and treasurer, Metzger Motor Car Co., Detroit, Mich.; William Kelley, vice-president and engineer, Metzger Motor Car Co., Detroit, Mich.; J. G. Vincent, chief engineer, Hudson Motor Car Co., Detroit, Mich.; A. R. Miller, Barthel, Daly & Miller, New York City; John S. Clarke, vice-president, Autocar Co., Ardmore, Pa.; B. B. Bachman, engineer, Autocar Co., Ardmore, Pa.; David S. Ludlum, president, Autocar Co., Ardmore, Pa.; G. R. Wadsworth, assistant to president, Peerless Motor Car Co., Cleveland, Ohio; A. J. Myers, engineer, G. & A. Carburetter Co., New York City; G. B. von Rottweiler, manager and chief engineer, Falls Machine Co., Sheboygan Falls, Wis.; H. L. Davisson, engineer, Edison Storage Battery Co., West Orange, N. J.; L. C. Marburg, secretary and treasurer, Marburg Bros., New York City; Coker F. Clarkson, secretary, Society of Automobile Engineers, New York City.

Those who are planning to make the trip if possible are:

S. P. Wetherill, Jr., general manager and treasurer, Wetherill Finished Castings Co., Philadelphia, Pa.; H. F. Cuntz, mechanical engineer and patent attorney, Automobile Board of Trade, New York City; A. P. Sloan, Jr., general manager, Hyatt Roller Bearing Co., Harrison, N. J.; Lon R. Smith, Eisemann Magneto Co., New York City; N. B. Pope, technical editor, Motor World, New York City; W. G. Wall, chief engineer, National Motor Vehicle Co., Indianapolis, Ind.; Bernhard M. Beskow, Commercial Tractor Co.; John G. Wood, general manager, Empire Motor Car Co., Indianapolis, Ind.; A. O. Dunk, vice-president and general manager, Auto Parts Mfg. Co., Detroit, Mich.; C. H. Foster, president and general manager, Gabriel Horn Mfg. Co., Cleveland, O.; Charles Ethan Davis, general manager, Warner Gear Co., Muncie, Ind.; Thomas J. Kehoe, Kinsey Mfg. Co., Toledo, O.; E. W. Hart, manager lock washer department, Hobbs Mfg. Co., Worcester, Mass.

DR. TESLA TALKS OF GAS TURBINES

(Continued from page 23)

that Tesla himself cannot answer, though he explained that he is "under great pressure from all sides" to complete the development of certain kinds of apparatus, steam engines and pumps having received a great deal of attention up to the present, and that he expects to have some of them ready for production "before very long."

Tall, erect, almost angular, with the broad brow of the philosopher and the sharply chiseled features of the habitual student, Dr. Tesla bears few of the earmarks of the traditional genius. He wears his iron-gray hair a little low in the back, to be sure, but not for an inventor, and when he walks there is just a bare suggestion of histrionic attainments utterly at variance with the hurried preoccupation of the conventional type of man whose brains are stored in the archives of the Patent Office.

"We understand that you are doing remarkable things with steam, but how far has your confidence been extended to the gas turbine?" the scientist was asked.

He laughed.

"Why, I am working with them all the time," he answered.

"You mean to say that you already have built and operated internal combustion turbines employing your principle of fluid propulsion?"

"Yes. But I am not satisfied—not yet. You see there are many things to be considered. The turbine, that is one thing; it is complete in itself and there is no question of its applicability. But when you come to the combustion of the gas you have a new difficulty. It am not satisfied with the present methods of gasification. I have tried one of my turbines discharging the gas into a chamber and then spraying water into it. You see in that way you get an intermittent flow through the nozzle, but you also have better thermal action because you get your adiabatic expansion, [meaning that in which theoretically there is no loss of heat]. And then, I have tried with gasoline using a constant jet, in which you get less efficient thermal action but better action for the turbine. But I am not yet satisfied. I think that some day we shall get better processes of combustion that will enable me to work to more advantage with my turbine.

"You see, that is one great trouble," continued Dr. Tesla. "The human mind thinks but to complicate. As soon as one problem is solved, that solution introduces new complications, other problems that perhaps did not exist before. That was one of my great troubles when I was younger, I invented many things that were very fine, but always I was getting into complications. I have had to work very hard to overcome that. But here, you see what I have done. Do you see how very simple it

is? You take, for instance, the ordinary turbine, a bucket turbine. Here you have around the outside of the wheel a row of little jets, and within, on the periphery of a wheel, a row of buckets—many of them and very small, even on a large wheel. But don't you see that in that entire wheel you have only a narrow strip, a ring perhaps three or four inches wide, that is really useful—that is really active?"

"In my invention practically the whole surface is active. In the bucket turbine the action does not even extend all the way around; you must have a series of jets. But in my turbine you have the gas traveling all the way around in free spirals—always seeking the path of least resistance—and expending its full energy."

Here he laid aside the pencil with which he had been illustrating the point, and reverted to the beginning of what he evidently considers his "big idea."

"I have been working at this a long time. Many years ago I invented a pump for pumping mercury. Just a plain disk, like this, and it would work very well. 'All right,' I said, 'that is friction.' But one day I thought it out, and I thought, 'No, that is not friction, it is something else. The particles are not always sliding by the disk, but some of them at least are carried along with it. Therefore it cannot be friction. It must be adhesion.' And that, you see, was the real beginning.

"For if you can imagine a wheel rotating in a medium, whether the fluid is receiving or imparting energy, and moving at nearly the same velocity as the fluid, then you have a minimum of friction, you get little or no 'slip.' Then you are getting something very different from friction; you are making use of adhesion alone. It's all so simple, so very simple.

"This is the greatest of my inventions," Tesla went on with great enthusiasm. "Now take my 'rotating field'—do you know my rotating field—are you familiar at all with electricity? There are millions invested in it already. Well, that is a very useful thing, but the field is limited to dynamos and motors. But here you have a new power for pumps, steam engines, gasoline motors, for automobiles, for airships, for many other uses, and all so simple."

"But is it really true that you have produced 110 horsepower from a wheel only 9¾ inches in diameter and two inches wide, as has been reported?" asked the interviewer incredulously.

"Oh, yes!" was the reply. "And more. We could get more power. We had 125 pounds steam pressure and no vacuum. We ran it that way for hours."

"Was it sustained power?"

"Yes, sustained power. And we could only use part of the drop in pressure; we would have twisted off the shaft, it was so light, if we had been able to use all the energy of the steam. I had to put in a smaller nozzle on that account."

"And they are very light, these steam engines?"

"I can build a steam engine that will develop one horsepower for every one-tenth of a pound of weight," was the instant and amazing response. "I am now building a double turbine, one with two wheels which must revolve in opposite directions. It is for a special purpose, and I cannot talk much about that, but each wheel develops 200 horsepower, that is 400 horsepower, and it weighs 88 pounds."

A no less amazing claim made at another time was that the steam turbine could be made to return in power at the shaft no less than 97 per cent. of the energy of the steam. There seems to be no limit to what the inventor thinks the new system will accomplish, though, of course, a waiting world may be pardoned for withholding a full verdict of confidence until it has had opportunity to witness some of the promised marvels.

As far as demonstration of the basic principle is concerned, however, the success of the idea is unquestionable. A small pump, originally put together for purposes of exhibition before a body of scientists, to whom Dr. Tesla first disclosed his invention, was operated for the benefit of the Motor World man; the inventor himself obligingly switching on and off the current from the little electric motor which drove it, and operating the valve by means of which the discharge could be regulated to increase the flow and decrease the pressure, or vice versa.

The rotor, mounted in a casing of volute form hardly more than six inches in diameter, contained five disks of three inches diameter. From a small tank, which was part of the model, water was drawn into the casing and forced through a pipe with a lift of 18 inches or so to a long strainer in a horizontal pipe, whence, after passing a baffle plate, to break up the flow and prevent splashing, it fell back into the tank over a miniature weir in a beautiful clear sheet. The hand of a pressure gauge indicated four pounds when the valve was closed, but fell to a little under two pounds when the full discharge was permitted.

With the valve closed, the action of the disks was shown to good advantage. Rapidly snapping on and off the switch, the inventor gleefully pointed out how the hand of the gauge jumped up and fell back again so closely in response to the speed of the motor, as judged by the hum of its commutator, that eye and ear failed to detect the difference.

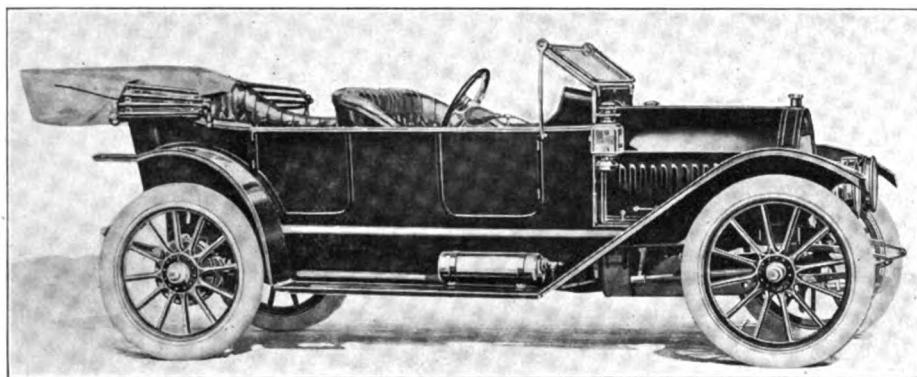
"And so you really believe that a practical form of gas turbine can be developed on this principle and in such shape that it could be profitably adapted to automobile use?" asked the Motor World man.

"I am so sure that I would make a contract today to build gas turbines and equip automobiles with them."

JACKSON ADOPTS TORPEDO LINES

Three Higher Powered Models Are Different Sizes of One Pattern—New Prices—Center Control Roadster.

Radical changes in the line of Jackson automobiles, produced by the Jackson Automobile Co., Jackson, Mich., for 1912, relate chiefly to the prices and bodies of the various models, in comparison with their 1911 predecessors. New prices have been made that place the largest car of the line at \$1,800 instead of \$2,200, without sacrifice or important modification of the power plant and chassis, while the body construc-



TORPEDO LINES OF THE THREE HIGHER POWERED JACKSON MODELS

tion has been improved. Similar new prices and body improvements apply to the smaller models. Altogether there are five general models, of which the lowest priced is being listed at \$1,000, a two passenger roadster.

Each resembling the others, both in body and in chassis construction, the three largest models represent three sizes of the one prototype, all having five passenger torpedo type body with non-detachable front doors, but differing in three sizes of engine, wheelbase and wheels, while maintaining practically identical relative proportions in each case. A description of the largest car, therefore, serves also for the two models next in size, except the differences indicated.

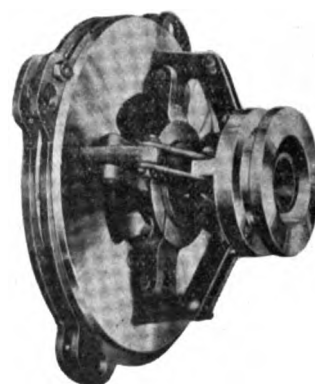
The big car is known as Model 52, and its four cylinder engine, $4\frac{3}{4} \times 4\frac{3}{4}$, is rated at 50 horsepower. In the design of its body and its general appearance the car is a pronounced departure from anything the Jackson company heretofore has brought out. The body is of the true torpedo type, with closed front and with control levers, handles, etc., inside. The wheelbase is 124 inches, and the wheels are shod with 36 x 4 inch tires on demountable rims. A combination of top, windshield and speedometer, in addition to the regular equipment, is supplied for \$135 over the regular \$1,800 price.

The characteristic Jackson motor, evolved in 1908, and having the valves at

an angle of 45 degrees in the opposite sides of the spherical heads of the cylinders, is retained. The valves are actuated by an overhead camshaft driven from the crankshaft by a vertical shaft and bevel gears, avoiding the necessity for long push rods from the engine base. As claimed by the Jackson company, the advantages of the 45 degree valves and spherical cylinder heads are a much freer and quicker admission and ejection of the gases in relation to the combustion chamber, and a more complete scavenging than is possible with ordinary construction. It is pointed out, also, that in entering and leaving the cylinder, the gases are not compelled to travel around corners or change their general direction, an effect that contributes toward

flexibly suspended in the frame so that alignment may be maintained despite any road shock. This construction has obtained in the Jackson chassis for a number of years. Full elliptic springs both front and rear are used in all models, and to provide for their use the proper drop frame provision is made in each case. Selective sliding gear, with three speeds forward, prevails throughout the line, together with a distinctively Jackson clutch, of the plate type.

Ranking next to the biggest car is the Model 42, having the same general construction, but with a motor $4\frac{1}{2} \times 4\frac{1}{2}$ and a wheelbase of 118 inches. It travels on 34 x 4 tires, not demountably fitted. In this model, which sells for \$1,500, the liberal equipment policy has been extended



JACKSON PLATE CLUTCH

more rapid action and a considerable increase in power.

Cooling is by the thermo-syphon system. The valve operating mechanism is worked out in careful detail, including the fitting of rollers to the ends of the rocker arms to minimize wear.

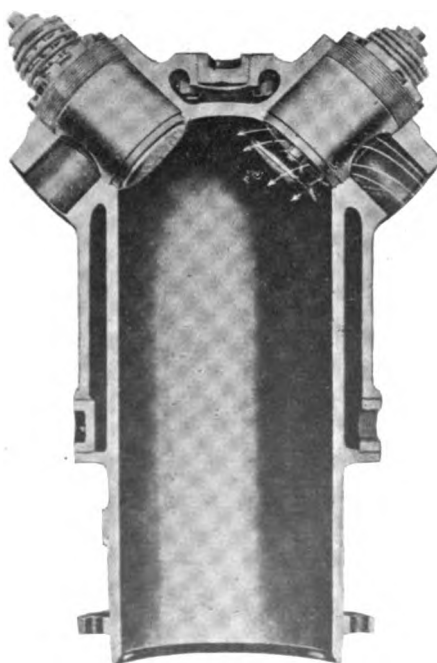
Motor, clutch and transmission are a unit, enclosed in a dustproof case and

to include top with top hood and a windshield, in addition to gas tank, gas lamps, oil lamps, coat rail, tools and the like. Without top and windshield the price is \$1,450.

The third in size of the torpedo models, No. 32, is of the same pattern, but with an engine 4×4 and with a wheelbase of 110 inches, the tires being $32 \times 3\frac{1}{2}$. It lists at \$1,100, with extra charge for top, windshield and speedometer.

A two passenger torpedo roadster, selling at \$1,100, is offered in Model 26, which has center control, a feature heretofore employed by Jackson only in one of its earlier four passenger cars. It has a high side door, the gasoline tank and luggage box being at the rear. The wheelbase is 100 inches, while tires are $32 \times 3\frac{1}{2}$. The motor is 4×4 and has the valves in the side. In Model 27, at the same price, an identical car is presented, but with the 45 degree valves in the cylinder heads, operated by overhead camshaft, as in the bigger Jackson cars.

At \$1,000 the company offers its Model 28, having a plain open two passenger roadster body, with control levers on the right side, and gasoline tank and luggage box at the rear. This, too, has a 4×4 engine with valves in the side, but for those who prefer the 45 degree valves in the head, Model 29, also at \$1,000, is available, resembling Model 28 in all other respects, the equipment also being similar.



JACKSON 45 DEGREE VALVES

EXTRACTING FANGS FROM GASOLENE

German Invention Demonstrated in New York Adds to Safety of Handling Fuel—Simplicity of Device.

Before a gathering of some twenty engineers, chemists and representatives of the press at the laboratories of the Berlin Chemical Co., at 560 West 171st street, New York, Dr. Edward D. Feldman yesterday (Wednesday) gave a practical demonstration of a new safety device for gasoline cans and other receptacles for highly inflammable liquids. The device is styled "Langrehr," after its inventor, and comes from Germany with the strong backing of government adoption on warships, in navy yards, etc.

As is the case with practically all other safety devices against gas explosions it is a variation of the Davy lamp principle, which consists in placing between the flame and the gas supply a screen of metal. This screen, by its cooling action, reduces the temperature of the combustion gases and prevents a communication of the flame to the bulk of gas. In the original Davy lamp this result is obtained by means of a fine mesh wire screen, but in the Langrehr device the cooling effect is obtained by causing the inflammable liquid to pass through a tube of metal, in which the perforation effects are produced by means of a flat strip of metal, smooth on one side and corrugated on the other, which is wound spirally to form a tube. This tube is screwed into the mouth of the gasoline receptacle and is claimed to prevent any and all "back-firing." Dr. Feldman, in his experiments, proved that a can partially filled with gasoline and fully charged with the dangerous explosive mixture of air and gasoline vapor, would not ignite or explode. He poured gasoline from one can into another through an open flame, while air was blown into the cans, forming highly explosive mixtures, and yet, no explosion occurred, although several of the press representatives fidgeted rather nervously in their chairs during the test.

Belgium's Industry and Small Output.

The extent of Belgium's automobile industry, as disclosed by a recent official census, proves it to be almost microscopic as compared to the American industry. According to the figures, there are engaged in the business in the little kingdom, 23 makers of motor cars and motors for vehicles, employing 5,217 workmen. The plants delivered 2,171 chassis in 1909, and 3,020 in 1910, and it is anticipated that this year the number will reach 4,850. Motor car accessories are made in 200 plants, employing 3,500 workmen. The coachbuilders who are

engaged exclusively on motor cars number 50. They delivered 1,212 bodies in 1909, and 2,617 in 1910; for this year the number probably will reach 3,480.

Lathe Tool That Supplies Many Points.

Not only does the Billings & Spencer Co., of Hartford, Conn., make automobile parts and heavy drop forgings, together with tools of a sort that are suited for a place in the motor car equipment, but it also makes a number of shop and machine tools calculated to serve the factory and repair shop. The newest of its productions in this line is the Jacques Diamond Point tool for lathe work. It is a single drop forged piece, embodying a succession of points, as shown in the accompanying illustration. The points are used one after another as the end points become dull. By simply grinding away the dull point, a new point is exposed for use. This new point is sharpened and hardened in the usual way. The economy of the tool lies



in the fact that no blacksmithing is required in repointing. The first tools made were hardened throughout, with a view to avoiding the necessity for retempering each of the 12 points in turn, but it was discovered that a fully hardened tool would break in the center under heavy service. While the hardening of the whole tool is now dispensed with, the tool is furnished with the two end points hardened, and the whole is drop forged of high speed tool steel.

Two Thousand Cars "Lost" in Oklahoma.

As has been the case in many other States, the number of automobiles actually registered and found by county assessors in the State of Oklahoma is far short of the "estimate" of the highway department. While the latter officials claimed the existence of 5,500 Oklahoma-owned cars, the various county assessors were able to locate only 3,504, or about 64 per cent. The count was taken because only 1,000 automobile owners of the State had paid the \$1 tax demanded of them by the highway department, and some one in this department was rather anxious to locate the missing 4,500, and thereby add \$4,500 to the State treasury.

Iowa Professor to Produce Vulcanizers.

B. M. Allen, who formerly was mechanical instructor in the Highland Park (Ia.) College, has resigned that position, set up a plant in Des Moines, and will engage in the manufacture of a portable tire vulcanizer which he has invented. It is of the self-contained type, steam being generated by gasoline fuel.

ENGLISH VIEW OF YANKEE INVASION

American Popular Priced Cars Making Great Headway—Pemberton Says They Are Too Good To Be Scoffed.

Opinions are divided as to the influence of American imports on the British automobile market. Many of the English manufacturers, having undergone a period of apprehension when several American manufacturers' exploitation plans were announced, have recovered their equanimity. Together with a large proportion of the retailers and accessory people they now seem to feel that there is absolutely no danger to their own interests either through direct competition or as a result of a wholesale "dumping" of left-over models to be sold at cut-throat prices. That this spirit of confidence is not universal, however, is evidenced by Max Pemberton, the author, who also is automobile correspondent of the London Field, who does not attempt to deny his conviction that in the \$1,000 American car, British builders have an extremely hard-shelled nut which they will be a long time in cracking.

"No one, I think, can drive very far upon any considerable trunk road and fail to perceive that the American invasion is a reality and that the British manufacturer is already called upon to face it," Pemberton writes. "The little cars with their apparently frail equipment and their names scribbled boldly upon their radiators glide by us at every turn, are seen standing before many a humble house and are to be found in every inn yard."

"A friend of mine," he continues, "discussed the affair recently with the agent of a well known maker and some odd talk ensued. 'Would you,' asked the agent, 'be willing to go about in ten and six penny boots when you usually pay forty shillings?' My friend retorted that he would not care the end of a match what the boots cost if they wore well and were shapely. 'Ah,' rejoined the agent, 'if they wore well! How do you know that these Yankee cars are going to wear at all?' To this the answer was that the particular Yankee car in question cost \$1,000 all ready for the road and that if the whole thing were scrapped at the end of two years depreciation would be no larger an item than it is now with any English car costing, say, \$2,500. Indeed, it would be less, for the man who could get \$1,500 for his car at the end of two years would be a lucky fellow."

"Admitting this, the agent went on to ask if my friend supposed that any rich man, accustomed to drive a stately carriage from such houses as Rolls-Royce, Daimler, Wolseley or Napier, would be seen in one of these American contraptions. The reply was: 'Certainly not.' The cars

are for the multitude and the multitude is buying them. Even the rich man might use them as runabouts at his country home, but he is not concerned in the argument, for the ample reason that there is not enough of him. The cars will stand or fall according as they meet or do not meet the considerable demand for a serviceable vehicle at a price of \$1,000 or thereabouts."

After this colloquy there follows much regarding the necessity for the Briton to combat and defeat the American invasion in automobiles as he has done with other such invasions in other lines. "Because," says Pemberton, "we have seen many of these cars upon the road, we have heard excited owners bear witness to their durability, we have studied the photographs which show them braving roads in America which seem to us unspeakable, we have heard and seen all this, and gradually we have come to put our prejudice aside and to get down to reality. The cars will go, there is no doubt of it. They are not the shams we once believed them to be, they have pleased thousands of British owners, they are for the moment the supreme problem for all whose interests are at home and industrial. Let us regret the fact or rejoice at it, according to our point of view, it is one which dominates the year and will make it memorable when the story of this decade is wholly written."

In conclusion he says with a shudder: "This is a great subject and we are but at the beginning of it. The attitude of the British manufacturer toward it seems to me unduly optimistic and altogether too lofty. There is a crisis before him and he must face it. We shall await his answer to the 'Yankee' cheap car with interest."

"I am no admirer of many of these little productions, and therefore may write of them favorably without a suspicion of prejudice. It seems to me, in a word, that they are about to revolutionize the small car industry and to revolutionize it wholly. That they will compete with the larger and finer products of the British houses I do not for one instant believe, but that they will make it almost impossible to sell a 12 horsepower car in this country for any sum above \$1,500, I hold most stoutly. They are now reaping the reward of the enterprise, as it seems to me, and if the British makers are to fight the Americans successfully they have no time at all to lose. Other industries have been through the ordeal and emerged triumphantly. The bicycle trade won its battle long years ago and vanquished the enemy utterly. It can be done in the motor trade even yet, but some coats must first come off and some good right arms be bared."

The contacts of coil tremblers periodically become pitted and require, to be smoothed down with a fine file. If no file is available, however, they may be effectively dressed by tapping them lightly with a very small hammer.

FIRE TRUCK CREATES NEW RECORD

Propels Itself 350 Miles from Factory to Destination—Leaves Trail of Interest Along the Route.

When early this month a Sampson combination chemical, hose and hook and ladder truck was sent under its own power from Detroit, Mich., to Alliance, Ohio, its manufacturers killed a whole flock of birds with one stone—not only the proverbial two. The trip was the longest ever undertaken by a fire truck, covering as it did no less than 350 miles of good, bad and indifferent roads, and that the machine came

portant cities: Trenton, Mich., Toledo, Clyde, Sandusky, Elyria, Cleveland and Massillon. In the latter city a test was arranged between the Sampson and horse equipment. Chief Aungst, of the Alliance fire department, accompanied the truck the whole distance, and was at the wheel when the destination was reached, and there the whole town was out to welcome it in "conquering hero" style.

Kentucky Makes Big "Raid" on Motorists.

Motorists of Louisville, Ky., who imagined that they could evade the provision of Section 4 of the State automobile law, requiring that the number of their state license be displayed on the side lamps of their cars, in addition to the regular li-



SAMPSON FIRE TRUCK WHICH MADE 350 MILES JOURNEY

through the difficult and arduous test without trouble or break-down is a matter of much gratification to its makers.

Aside from delivering the truck at its destination without having to resort to freight trains, the United States Motor Co. managed to give the vehicle a thorough try-out and at the same time gave such convincing demonstrations of its efficiency that most of the towns en route, where the truck performed, are said to be clamoring for similar apparatus.

The truck, which is shown in the accompanying illustration, carried on its trip its complete regular equipment, including four extension ladders, two scaling ladders, chemical tank and reel of hose, rubber boot and coat racks, and a 10-inch searchlight. It has a four cylinder motor developing 33 horsepower and is capable of making 35 miles per hour. Metal cases protect the driving chains and a differential locking device is used to insure traction for both rear wheels.

In making the trip from Detroit to Alliance the truck passed through several im-

cense tags, had a rude awakening last Saturday, when 800 of them were served with warrants. The crusade was started by the State revenue agent at large, who spent several weeks gathering evidence, aided by deputies sent from the State capital. The penalty for violation of the law is a fine of not less than \$20 nor more than \$50 in each case. The earlier automobile laws of nearly all States contained a similar provision, but it was soon proven ineffectual and of no real service and was soon abandoned.

Brackets That May Extinguish Lights.

If electric lights suddenly extinguish themselves for no apparent reason the lamp brackets themselves should be examined, incongruous as the suggestion seems. The reason for this procedure is that in some wiring systems the return circuit is formed by the chassis of the car, only one wire being led to the lamps. When such is the case, paint of other foreign matter on the lamp brackets will prevent the passage of the current.

The Unit Power Plant; Both Sides of the Subject

One of the most interesting developments which marks the history of automobile design was the appearance in the year 1904 of the first four-cylinder unit power plant supported at three points. To the old Stevens Arms & Tool Co., Chicopee

of the male and female portions of the clutch. Lack of foresight was directly responsible; crank shaft bearings were plain, whereas the shafts in the change gear set were carried in roller or ball bearings. Consequently the wear in the crank shaft

simple expedient of making the engine bearings and those in the change gear set the same, either both plain or both roller or ball, according to the inclination of the designer. But the fact remains that unless these bearings are the same, some form of flexible connection is absolutely necessary, and this should not be lost sight of. In this respect it should be remembered that the conditions obtaining in unit power plants and separate elements are vastly different. When the elements are separate, the shafts may be neither concentric nor parallel, and therefore to make a perfectly flexible connection two separate universal joints at the extremities of a short floating shaft are necessary. With the unit power plant, on the other hand, the ordinary universal joint is worthless, owing to the fact that the shafts in practically all cases are maintained parallel, though they may not be concentric, and as the ordinary type of universal joint will not transmit power unless the shafts are concentric, there remains nothing but to use an Oldham coupling or something very similar.

Notwithstanding objections to the Oldham coupling, which probably are due to the fact that not infrequently it was incorrectly used, that form of joint probably is the best to use, for the reason that it corrects for lack of concentricity and within certain limits also for lack of parallelism.

Falls, Mass., now the Stevens-Duryea Co., belongs the credit for the actual introduction, though the idea even then was not absolutely new. For some time previous, foreign manufacturers had been experimenting in a desultory sort of way along the same general lines, but the Stevens-Duryea was the first four-cylinder car embodying a unit power plant actually placed on the market. Few realized the scope of the apparently simple design at that time; today the full value of the system is appreciated and it is being used by an increasing number of manufacturers both in this country and abroad.

In theory, the unit power plant is simple; it is supposed to insure the positive maintenance of the alignment of the several connecting shafts in the engine, the clutch and the gear set, though whether it does so depends largely on the construction of these elements. Due to constant effort on the part of designers, it does so in 99 cases out of 100, though at first clutch trouble was not rare in spite of its incongruity in view of the fact that as often as not the trouble occurred in unit power plants which were supported at three points.

The trouble which was experienced was exactly the same as had marked the efforts of earlier designers whose cars embodied separate engines, clutches and change gear sets, and was due to lack of concentricity

bearings was greater than it was in the change gear bearings, and when the engine bearings were taken up the inevitable result was that though the shafts still were

maintained parallel they no longer were concentric. The effect may readily be imagined.

The old method of interposing some sort of a flexible connection, preferably an Oldham coupling, between the engine and the change gear set, to correct for the lack of concentricity, was greatly improved by the

Whether or not the shafts run parallel depends largely on the method of supporting the unit. Cases have been known where even with a three point supported unit some little difference in the alignment of the shafts became apparent after a short time. Such cases are extremely rare, however, and this is the least of the troubles

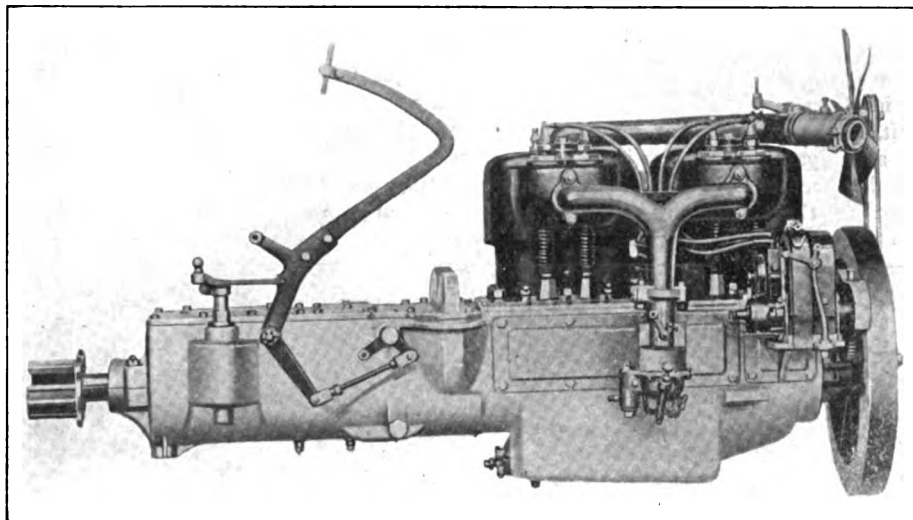


FIG. 1—INTEGRAL HOUSING IN MAXWELL UNIT POWER PLANT

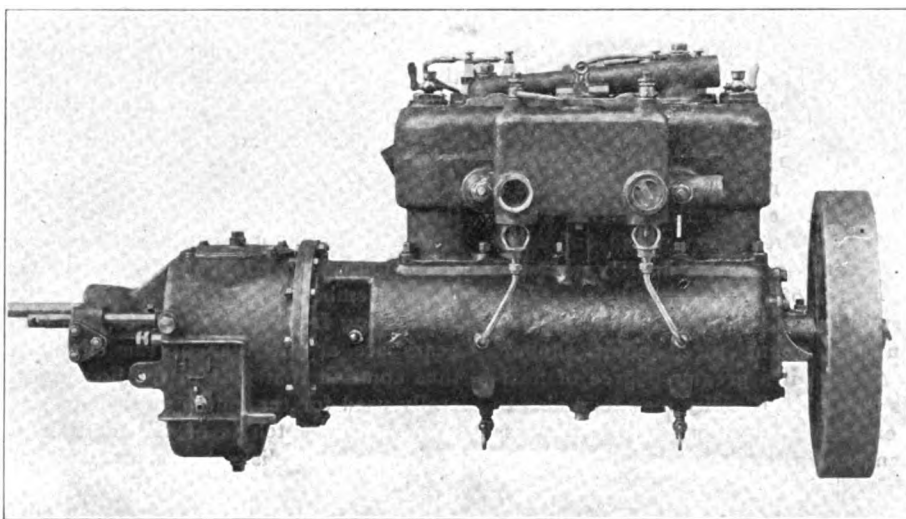


FIG. 2—SHOWING FLYWHEEL IN FRONT—HUPMOBILE CONSTRUCTION

with which engineers have had to cope.

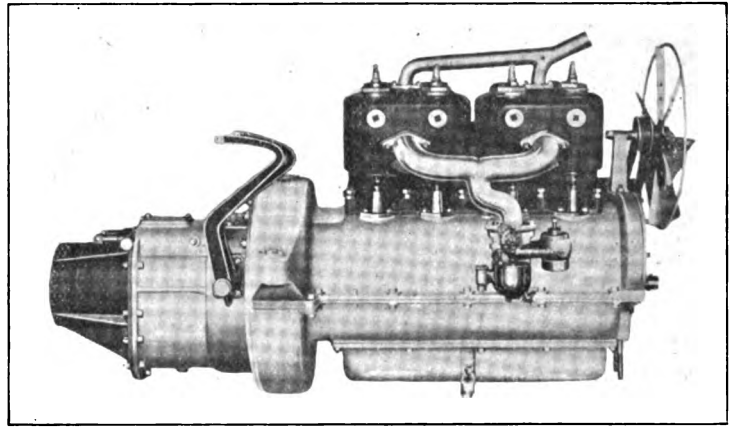
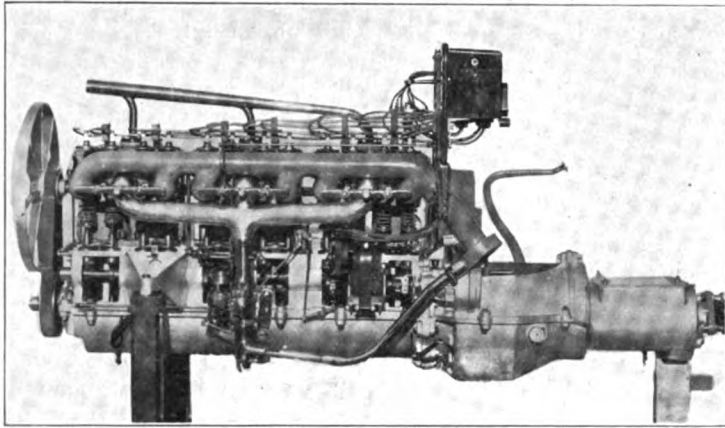
Disregarding other considerations, the ease with which a unit power plant may be so arranged as to be supported at three points is in itself an advantage which cannot be overlooked. Briefly, the advantage of three-point support is that regardless of frame flexure or weaving the proper relationship of the component parts of the unit power plant is maintained. That there must be a certain amount of frame weaving is self-evident, inasmuch as there is no such thing as absolute rigidity, the word rigid signifying "a body which undergoes no change in shape, such as by being crushed or stretched or pulled apart, or penetrated by another body." There is comparative rigidity, and it is this that engineers who mount their power plants on four supports obtain. The power plant, or the engine and gear box separately, as the case may be, act as cross girders in the frame, and the degree of rigidity obtained is sufficient to

dentally, it has been an open question for some time as to whether flywheels are not now made inordinately heavy. The time has passed when flywheels were expected to cover a multitude of sins, for which incorrect designing was responsible, and owing to the present perfection of balancing methods, it appears that flywheels might advantageously be made considerably smaller and lighter. As a matter of fact, flywheels now are much smaller than they were a few years ago, though some of them still are exceedingly cumbersome.

Generally, the housings of unit power plants are composed of two parts, one forming the crankcase and the other enclosing the change gear mechanism, and these two parts are firmly bolted together, making in effect a single unit. In the Maxwell unit, however, which, as may be seen by the accompanying illustration, Fig. 1, has the flywheel at the front, the engine crankcase and the change gear housing are

parts, the crankcase forming one and the gear case the other. The joint where they are bolted together is ground and therefore is oil-tight. Further increasing the simplicity of the power plant, the location of the flywheel in front permits the elimination of a fan. The spokes in the flywheel are cast in the shape of fan blades and the circulation of air which is provided is sufficient for all ordinary purposes, though where the car is to be used in very hot climates, a fan is added as well.

The clutch, which is of the multiple disk type, and the change gears, are contained in the after portion of the unit housing and both operate in the same oil bath. Incidentally, the oiling system on Hupmobiles is unique in that the oil is fed by gravity and in quantities proportionate to the engine speed. The oil is contained in a cast reservoir bolted to the side of the cylinder casting and therefore is maintained at an even temperature and its viscosity remain



FIGS. 3 AND 4--STEVENS-DURYEA AND OHIO UNIT CONSTRUCTION WITH FLYWHEELS IN REAR

preclude the possibility of shafts being thrown out of line.

Regarding the relative merits of three and four point support, numerous controversies have been carried on, though up to the present time neither appears to have a decided advantage over the other. There is one point, however, on which engineers are very nearly in accord, namely, that too great a degree of rigidity may be the cause of crystallization and consequent fracture, and on this count three point support scores, as with it a greater degree of flexibility is possible. Rigidity may tend also to cause excessive vibration, but it likewise has been shown that three point supported power plants, unless carefully designed and mounted, may be even worse in this respect. This trouble, like others, however, has been gradually overcome and present day practice leaves little to be desired with either system of mounting.

There are two methods of mounting the flywheel in unit power plants and each has advantages peculiar to itself. Locating the flywheel in front makes for a little more even distribution of weight and also permits of a smaller housing being used. Inci-

cast integral. The unit is supported at three points, all three of which are flexible connections. Two of them are at the front end of the engine and are rigid arms cast integral with the crankcase. The third is at the extreme end of the housing in which the change gear mechanism is enclosed and is in action a pivot. The lower half of this pivot joint is carried on a dropped cross frame member.

Differing from usual practice, the timing gears are at the rear of the engine and thus come in that part of the housing generally used for the clutch and change gears alone. The clutch is of the multiple disk variety, all the disks being of metal without facing, and runs in an oil bath. The unit power plant also possesses an advantage in that there is no necessity for the pedal control mechanism being attached to the frame, the insulation of the power plant from the rest of the chassis thereby being more complete. As may be seen in the accompanying illustration, the Maxwell pedals are hung entirely from the unit housing.

In the Hupmobile unit power plant, illustrated by Fig. 2, the housing is in two

practically constant regardless of climatic changes. Within the reservoir, two plungers, held on their seats by springs, control the oil supply to the crankcase. The plungers are raised or lowered by a cam mechanism which is directly connected to the throttle lever, the amount of oil delivered being automatically increased when the throttle is opened and reduced when the throttle is closed.

The location of the flywheel at the rear, as exemplified by a large number of manufacturers, allows of enclosing a greater proportion of the moving parts of the engine. Also it permits of the clutch and flywheel being combined, a system of construction which effects a saving of parts and consequently of weight. Obviously, the principal advantage of thus combining the clutch and flywheel is the easy method of mounting the clutch which is possible; with cone clutches, the female portion may be made integral with the flywheel, while multiple disk clutches may be either enclosed in a housing bolted to the flywheel, or in a housing formed in the hub portion of the flywheel itself, which construction is the preferred.

In the Stevens-Duryea unit power plant, illustrated by Fig. 3, however, the clutch, though mounted on the flywheel, which, as shown, is at the rear, is outside of it and is arranged to run dry. The housing is in two parts, the crankcase forming one,

braces a unit power plant which is supported at four points, all four of the supports being cast integral with the upper half of the crankcase. The illustration shows clearly the simplicity of the single pedal control system and its method of attach-

anism is subjected to hard and continual usage, as, for instance, in taxicabs or light commercial vehicles indifferently handled, where the necessity for adjustments is greater than when the vehicle is used less frequently and with more consideration. The same system of construction, with but slight modifications, also is used on a number of other cars, including such well-known products as the Hudson and the Haynes.

The trend toward unit construction is marked, and more so since manufacturers have undertaken and are producing a greater percentage of the component parts which go to make up the finished product than ever before. The principal advantage of unit construction—the positive maintenance of the proper relationship of the different elements of the power plant—has been pointed out, and to this must be added the protection from road dirt and dust which the all-in-one-housing construction permits. When it is properly fitted together the ingress of foreign matter is practically impossible, and consequently, other things being equal, deterioration is less. Also the ease with which the average unit power plant can be kept clean externally is a point in its favor which cannot well be overlooked—generally it is possible to clean a unit power plant thoroughly by the simple expedient of turning the hose on it, and this without the slightest danger of harmful results. The magneto, of course, might be harmed by water, though there are several makes now on the market which are waterproof, and according to present indications, others will make their appear-

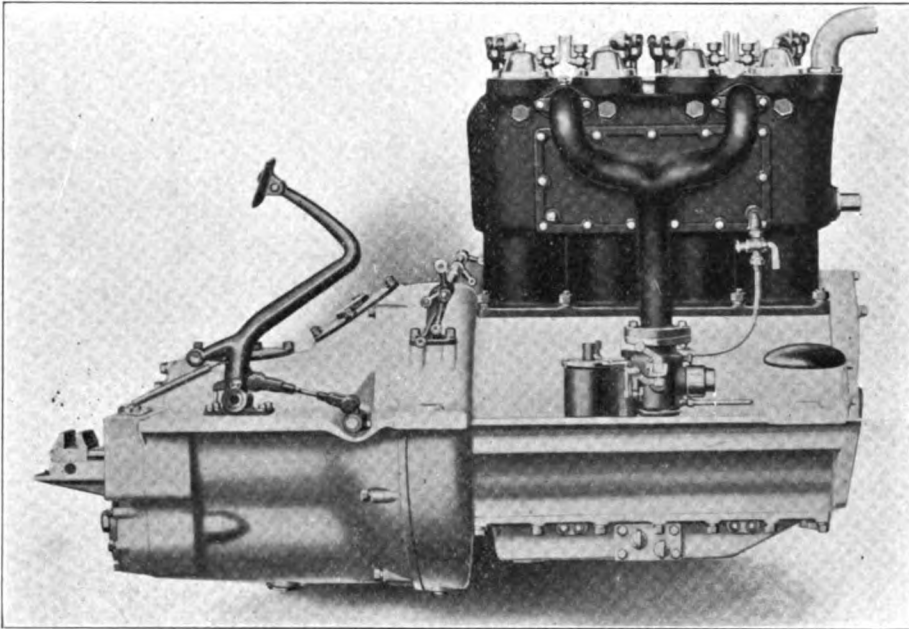


FIG. 5—FOUR POINT SUPPORTED CHALMERS UNIT POWER PLANT

to which the other, containing the flywheel and clutch and the change gear set, is bolted; a partition in the rear housing serves to separate the flywheel and clutch from the change gear set, which runs in oil. The method of supporting the Stevens-Duryea power plant at three points is one of its distinctive points. The front of the unit is supported by two arms, which are cast integral with the crankcase and are flexibly connected to the chassis frame. The rear end of the unit is carried on a single pivot bearing, mounted on a dropped cross frame member below the end of the housing in which the change gear set is enclosed.

The Ohio unit power plant, illustrated by Fig. 4, embraces a system of construction which steadily is gaining in popularity among manufacturers of four cylinder cars. The flywheel is at the rear and to it is attached a five-plate multiple disk clutch. Power is transmitted by means of a three speed selectively operated change gear set, in which the driving and lay shafts are arranged vertically. This power plant also is supported at three points, though the arrangement is just the reverse of that which is used in the others. Two of the points of support are at the rear, instead of at the front, and are cast integral with the top of the crankcase in that portion of the housing which encloses the flywheel. These are flexibly connected to the chassis frame. The third point of support is at the front and embraces a bearing carried on a dropped cross frame member.

Chalmers construction, as exemplified by the new "36," illustrated by Fig. 5, em-

ment to the power plant. The housing itself is in two parts, bolted solidly together, the flywheel and multiple disk clutch being in the crankcase portion and the four speed change gear set being in the other.

The arrangement of the Atlas engine.

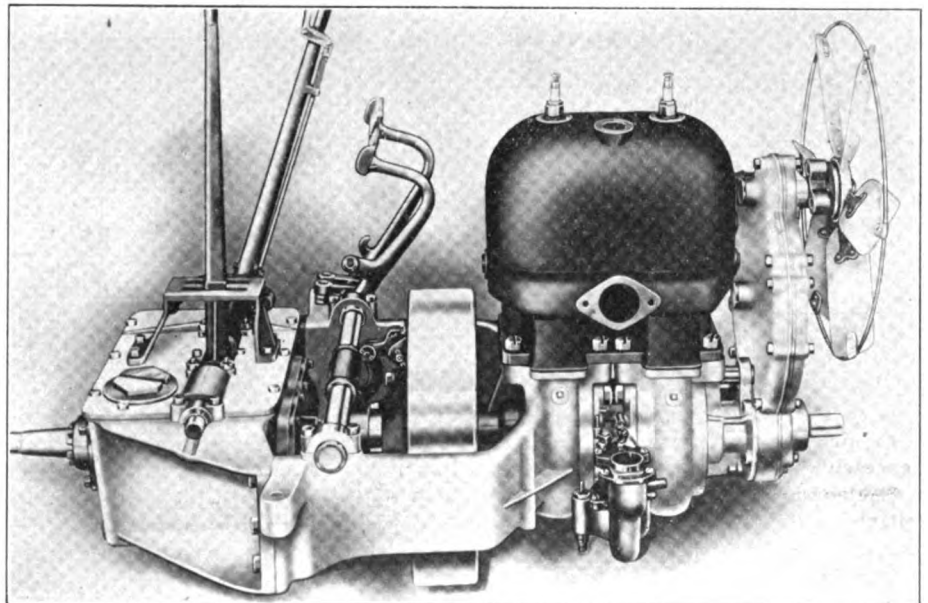


FIG. 6—ATLAS UNIT SHOWING EXPOSED FLYWHEEL AND CLUTCH

clutch and gear set, as shown by Fig. 6, is unique in that it allows of the advantage of a three point supported unit power plant, while at the same time the clutch mechanism is left open and easy of access. This feature is valuable where the mech-

ance in the near future, so that this danger need not be considered.

The unit power plant has been assailed on the point of inaccessibility. It has been said that parts which are "boxed up" are less easy of access than are those which are

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open. The reasoning is perfectly correct; parts are harder to get at. But that scarcely is a detriment today, when trips of a thousand miles or more—continuous running—have demonstrated conclusively that it seldom, if ever, is necessary to get at the clutch or the change gear mechanism except to replenish the lubricant. A few years ago, before automobiles had reached their present high state of efficiency, and it was necessary frequently to make adjustments, minor or otherwise, the contention that the unit housing made parts too inaccessible probably would have been apropos, but not today. The number of unit power plants in use at present is far greater than it was last year, and the probability is that next year the number will be even greater.

When Taxicabs and Touring Cars Differ.

The next time Edward T. Kohanyi, of Cleveland, Ohio, desires to take an automobile ride, he probably first will discover whether or not the car is a taxicab, a five-seated or a seven-seated touring car. His disregard of the difference between these vehicles cost him \$171 and court costs, and that is a lot of money to pay for a little town riding. Kohanyi had made an arrangement with the Prospect Auto Livery Co. to carry him around town at a flat rate of \$3 an hour, and when the company sent him a bill at a higher rate and amounting to \$171 he "kicked," claiming that the city ordinance regulating taxicab rates did not allow such high rentals to be charged. The livery company entered suit and the court decided that insofar as Kohanyi had ridden in big touring cars most of the time, the rate was not excessive and found against him.

Uncle Sam Tries Carrying His Postmen.

Having found the automobile very useful in transporting mail to and from the various substations to the main offices in a number of cities, the United States Post Office Department has extended the system to include the transportation of the letter carriers themselves to and from their outlying routes to the distributing offices, in the city of Washington, D. C. Three Franklin air cooled trucks are to be used in the service, and while the post officials consider the venture in the nature of an experiment, they are nevertheless confident it will work out successfully, as it will eliminate a good deal of the delay incident to delivery of letters by way of "Shank's mare."

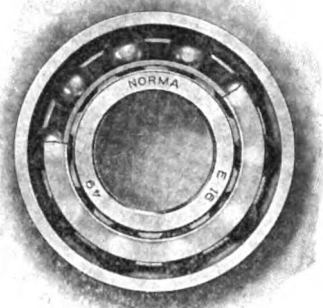
When Mirror May Prove Bedazzling.

When driving at night mirrors which are fitted to permit the driver to see overtaking vehicles during the day should be covered, or if adjustable, they should be moved slightly. If they are allowed to remain uncovered in their regular position there is danger that the brilliant lights of overtaking cars may dazzle the driver and blind him temporarily.

MORE BEARINGS FROM FATHERLAND

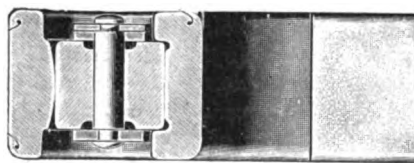
**Norma Product in Both Ball and Roller Types Appears on American Market—
Their Special Features.**

In entering the field with the Norma ball and roller bearings, the Norma Co. of America, of which W. M. Nones is general manager, and which recently has been



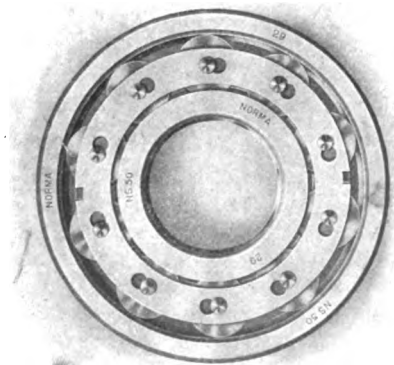
BALL CAGE IN NORMA BEARINGS

formed with headquarters in New York City, has undertaken to introduce to the automobile industry in this country a product which already has become known



CROWNED OUTER ROLLER RACE

abroad and which is not without distinctive features of a radical nature. The bearings have been developed and are manufactured by the Norma Co., of Cannstatt-Stuttgart, Germany, which has disposed of



NORMA ROLLER BEARING

the American patents and rights to the American company.

The ball bearings differ from other types

principally in that the outer race is open on one side so that the parts can be mounted independently of each other and in undivided housings. They may be mounted either with or without allowance for lateral movement. The two races always are rigidly held. The ball cage is of brass and is ingeniously contrived to grip the balls at their axes of rotation. The cage is formed in channel section with the base of the channel lying parallel to the inner race and perforated at the proper points to permit the lower part of the balls to project through and touch the inner ball track. The sides of the channel are crimped over the balls just sufficiently to retain them without impeding their rotation.

Exceptional accuracy is claimed for the manufacture of the bearings as a result of the employment of methods of precision. They are supplied for light, medium and heavy duty and in all the usual diameters.

The Norma roller bearings are designed to interchange with annular ball bearings, particularly where space limitations prevent the safe application of the ball type of mounting. Owing to their greater contact areas the roller bearings are capable of sustaining more than twice the radial loads of ball bearings of the same race dimensions. Like the Norma ball bearings, they are not intended to take end thrusts, such duty being served by combining either type with special forms of ball thrusts. The roller bearings are of the open type with short, cylindrical rollers mounted in a steel cage of rigid construction. The races may be mounted independently, as in the case of the ball bearings, and the parts assembled with the shaft, or they may be mounted as complete units.

A special feature of the design, which is claimed to yield exceptional service qualities, is the crowning of the outer race by a very slight amount. As a result of this provision, the bearing is capable of withstanding inaccuracies of mounting, axial displacement, vibration and even such slight disalignment as may be caused by shaft flexure without binding, skewing or wedging and without increasing frictional resistance. Various sizes are produced in types suitable for either medium or heavy service.

Easy Way to Remove Remote Rivets.

Fortunately it seldom is necessary to remove one of the rivets from the frame of the car in connection with roadside or emergency repair work, but when such a problem is presented it sometimes proves exceedingly difficult owing to the remote location of the fastening. In such cases it is well to remember that it is not necessary to remove the entire head in order to release the parts. Simply file or chip away the rounded head parallel with the shank until a square or octagonal head remains. The rivet then may be readily driven out by means of a punch.

American Cars as Seen by Fair Eyes of Foreign Critics

That the American automobile designer is "master of the world" in the elimination of small noises, is the somewhat astonishing conclusion of Arthur Ludlow Clayden, the English authority, who also expresses the belief that the American engineer has much to learn in engine work. Clayden, while here as the guest of the Society of Automobile Engineers at its mid-summer meeting in Dayton, Ohio, last June, gave an address in which he drew interesting comparisons between practice here and in England. His maturer impressions, prepared for the information of his fellow-countrymen and published in the *Automobile Engineer*, of which he is editor, constitute a thoroughly professional tribute to automobile manufacture on this side of the water and are much fairer than usually comes from English pens.

"So far it has been customary to neglect American practice as being devoid of desirable originality," the British engineer declares, "but if this has been so in the past it will not be in the future, and it is even doubtful whether much has not been lost by us by lack of knowledge of transatlantic doings." To which radical preface he adds: "Many of our manufacturers know to their cost that the exports of cars from English ports to British colonies are not what they ought to be, that, despite even preferential tariffs, American competition has almost closed some British markets to British automobiles, and it has been customary to account for this by saying that American commercial activity is greater than British. A close study of American cars in service in their own country leads to the belief that this is not all; in some respects the average American car would be far better for service in, say, South Africa, than the average British chassis."

"It is doubtful whether the untraveled Englishman can ever really grasp the nature of the roads on which American cars do nine-tenths of their running. . . . It is not too much to say that the 'dirt' roads, which are the only kind found outside urban areas in America, are no smoother and no harder than an ordinary ploughed field. Over such surfaces cars are forced at high speeds with heavy loads, and yet even some of the lighter and cheaper models contrive to hold together for several years."

"To a British observer, sitting beside a rough American road and watching a number of cars passing to and fro, their most noticeable characteristics would be the noisy engines and the extremely silent chassis. The American designer has much

to learn in engine work, but he is master of the world in the elimination of small noises."

"Notwithstanding the constant and violent bumping neither squeaks nor rattles develop to the extent they would in a European car: in fact the few foreign cars met with occasionally in America are usually more noisy than the native product of like age. It is not too easy to account for this quality, especially when it is remembered that almost all American chassis have contracting band brakes on the rear hubs, but absence of squeaks certainly is due largely to the greater use of metal in body construction and the practice of mounting bodies either upon strips of leather or upon rubber studs, so insulating the metal chassis and wooden body frames. Dashboards, too, are usually built very strongly, and add considerable to the rigidity of the middle portion of the frame."

"Also there is no doubt that American leaf spring makers have been either particularly lucky or especially painstaking, for it is but seldom that a poorly sprung car is encountered—that is, for the long undulations of American roads. Springs, as a rule, have a narrow leaf and a large amplitude, with a distinctly low periodicity, while the use of shock absorbers or dashpots is common."

"Rattle is avoided by the elimination of many small parts and the large clearance allowed between such parts as brake-operating rods and levers and other chassis members. It is this, partly, which gives an impression of 'straggleness' to a British eye. Thus for American (or British Colonial) service the compactness and neatness of European design has undeniable drawbacks, because reduction of clearances calls for a greater rigidity if small sounds are to be avoided, and rigidity of frame, and of what might be called frame attachments, can result only in violent straining on roads where it is but seldom that two of the four wheels are on a level."

"Speaking broadly, it might be said that the European chassis is usually rigid from the front end of the engine to the rear of the gear box, a distance of about half the wheel base. In American cars there is a strong tendency to unify the crank case and gear box and to suspend it at three points, of which two almost coincide with the position of the dashboard on the frame. This reduces the rigid length to a matter of a few inches only, and whipping in the frame does no damage as long as it is within the limits of elasticity of the frame members."

"Another and different effect of the rough

roads is found in the steering gears on the cheaper cars, for these are undoubtedly much stouter and more generously proportioned than those on other than the better class of chassis here. Curiously, the ball thrust bearings in the front axle pivots, which are almost universal in Europe, are practically unknown in America, and the same applies to the bearings in the worm box, these also always being of the plain variety. In front axle design the American car possesses scarcely any peculiarities, though perhaps the tubular form finds more supporters there than here. . . .

"The matter of the attachment of the springs to front and rear axles has had perforce more thought than this important detail is wont to receive, inverted U clips of very stout section being employed almost universally, on which it is not altogether unusual to find a castle nut and split pin used. Transmission of the driving effort and resistance of the rear axle torque by the chassis springs is not uncommon, but a torque rod is more often employed, and quite often radius rods are used as well—far more frequently than is the case outside America. Opinion generally is entirely in favor of the torque rod, and when it is omitted cost has always been the reason. . . .

"To a British designer the American rear axle is an object of curious appearance, but this is due principally to the contracting band brakes on the hubs. Remove these and their apparent conglomeration of take-off springs, stops and operating levers and a more usual-looking axle will be found. Pressed steel casings are gaining rapidly in favor, but are usually welded in a vertical instead of a horizontal plane—a matter entirely of choice or convenience—and sometimes the center case is pressed steel riveted to tubular sleeves, and malleable cast iron is also used occasionally, thought not nearly so often as in Europe. The most favored type here, that with conical sleeves, flanged and bolted to a center case, is seen now and then, but not by any means frequently. Likewise it is scarcely usual to find the road wheels mounted outside the sleeves, the more favored method being that of placing a single bearing outside the sleeve and relying upon the driving shafts to secure the wheel in place. Certain axle manufacturers are, however, giving all their attention to the newer pattern, and it will probably gain support for this reason."

"The fact that a very large proportion of all the axles used are manufactured completely by specialists also results in the employment of practically identical axles

by a number of car makers, and there is no doubt that this has militated against changes in design. None the less it must be remembered that the axles of an American car have to withstand extremely violent shocks, and, as a car with a sagging rear axle is as rare a sight in America as elsewhere, it may be presumed that the axles of the parts makers are, at any rate, strong enough.

"Internal roller bearings are very much favored, in fact, they are used for rear axles and road hubs to a much greater extent than ball bearings. Adjustment of the housings of the bearings is always provided for with all the better class of cars, and on many of the cheaper types as well, for it is recognized everywhere that adjustment of both crown wheel and bevel pinion is necessary if silent working axles are to be obtained with the minimum of trouble. . .

. . . The axle arrangement whereby the differential may be removed without disturbance of the road wheels is encountered now and then, but not frequently. Likewise the expanding hub brakes, which are fitted as well as the contracting bands, are seldom so neat as they have become in Europe. Perhaps this can be accounted for by the fact that cleanliness of outline does not appeal very strongly to an American engineer . . . and that American automobile designers have had more important things than appearance to consider. . .

"There seems to be no well-known car in America with a transmission or gear shaft brake, the arrangement of external and internal shoes on the same rear hub drums being practically in universal employment. Seeing that the bad roads of the country provide an overpowering argument against the external hub brake, this radical departure from current practice is at first not easy to understand. Inquiry, however, has elicited the suggestion that it is due to the action of one of America's leading makers. This concern some years ago adopted a design of transmission which made the fitting of a propeller shaft brake practically impossible. It was therefore necessary to find every argument in favor of the double hub brakes, and this an advertising department did to such good purpose that the rest of the American makers were weak enough to copy the design—in some cases against their own better judgment."

The use of metallic packing for facing both bands and shoes of brakes is another point of diversity that elicits comment from the foreign designer. Durability, freedom from rattle and squeaking are among the resulting advantages which are recognized. The absence of front wheel brakes and the scarcity of hand adjustments for brakes also is observed, though it is remarked that as the latter are found now and then their popularity is likely to increase, "for nobody is quicker to adopt a good feature than the American designer—once he is convinced that the new feature is really

good and not an unnecessary extravagance."

Four-speed gear boxes with direct drive on high, as applied to "most of the very large cars," and the prevalence of three-speed gearsets on small and medium sized chassis call forth the comment that three-speed practice is "more easy to excuse in America" because the difficulties of the road prevent the frequent use of high gear ratios. Taken as a whole he thinks the difference between American and European cars in respect to gear noises is not very great. The problem of reducing transmission noises is less difficult in America, it would seem, because of the prevalence of slower engine speeds.

"Really, perhaps the most striking thing in connection with gears is the ability of the American maker to turn out an enormous number of cars in which no one is conspicuously less noisy or more noisy than the rest of its series," he goes on to say. "The writer believes that this is due principally to the use of larger pitches than are common here. . . . The effect of using such large teeth is two-fold, firstly by reducing the number of contacts made and broken per minute it lowers the 'note' of the gear, and, secondly, any inaccuracy either of tooth form (by warping in hardening) or in shaft spacing, is likely to be a very small matter by comparison with the size of the tooth, that is to say, an error in position or form of a thousandth of an inch is only half as important on a wheel with four-pitch teeth as it is on a wheel with eight-pitch teeth."

Partial hardening of gears and methods of truing gears warped in the hardening process appear to be unfamiliar to the foreign manufacturer. The practice of one American builder in testing his axle units in a series of sound-proof chambers, where the effect of adjustments to reduce gear noises immediately can be determined, elicits unfeigned amazement.

But however much respect he may have for American chassis design, it would seem that the American engine holds no charms for the English editor. Indeed, he does not hesitate to say that the average American engine "bears a close resemblance to the typically French designs of 1906-1909." "The high-speed engine and the long-stroke engine are practically unknown," he adds; "bearings are usually inadequate, timing gears are noisy, and most of the attachments and engine fittings are of a decidedly clumsy nature."

"It is difficult to write on this subject of American engine design without commenting on the extraordinary ignorance of American engineers concerning the detail of British or Continental work. This is, of course, probably more than equalled by our own lack of knowledge concerning American doings, but the Americans have avowedly studied and copied European work, whereas there are not many firms in this country who have taken their cue from

America. It appears that the only European cars which have been imported to any extent are the very largest and most expensive and, . . . , the largest and most expensive cars now made on this side of the Atlantic are nearly all of them extremely old fashioned in design, by reason of the fact that the demand for big cars has fallen off so enormously with the improvement of the 15-20 horsepower class. This is, of course, not so in America, for there very large and expensive cars still sell in enormous quantities. . . .

"Engines smaller than 4 inch bore are quite uncommon, and there is a strong tendency for any car of less power than about 40 brake horsepower to degenerate into more or less of a 'freak,' often with two horizontally opposed cylinders, an epicyclic transmission, and so forth. It is not meant to convey the impression that a car of this type is necessarily bad, because there are many answering this last description which give very good service. . . .

"For cylinders the multi-casting is only just coming into vogue, and one hears brought against it all the old arguments which were used here two or three years ago. Two-cylinder casting is most usual, but many cars are still turned out with separate single cylinders. There is reason to believe that American foundry work is not so good as our own; about in the same proportion as our own (taken all round) is not so good as French and Belgian work. This shows itself in the usually greater thickness of cylinder wall, while cylinders are far more often strengthened by thickening up the section than by the introduction of webs or fins. . . . Valve arrangement, too, makes for heavy cylinders, because the T-head system is standard practice, only a very few cars having the valves arranged all on the same side. The pistons also in American engines are immensely heavy; the material is always ordinary cast iron, and there are almost always four separate rings, spaced well apart, with a deep thick skirt flared at the bottom for strength. Close fits are the rule rather than the exception, though stepped tapering in grinding is often resorted to. In fact, studying the running of a comparatively long stroke four-inch engine in one of the manufacturer's experimental rooms, brought home to the writer very forcibly the enormous difference to the British engine in which the adoption of light, short, loose-fitting pistons has resulted."

"Connecting rods are almost always nickel steel stampings, and they, too, are quite needlessly strong and heavy. All this reciprocating weight does, however, result in the use of most generously proportioned crankshafts, but the low maximum speed of revolution which the heavy reciprocating parts compel, has led to the evolution of three and even two bearing designs with the almost total extinction of the five-bearing shaft. . . . For oil grooving

many different designs are in use, just as in this country, and no one of them appears to possess any outstanding advantages over the others. . . . Ball bearings are used in one of two engines, . . . but they are quite audible in running, while they are very large and correspondingly costly. . . .

"Of course, this simplification of the lubrication system assists greatly to cheapen the engines, not only by reducing the number of parts, but by lessening the complication of the crankcase castings. For the latter, aluminum alloy is always used, and the engine is almost invariably carried from the main frame. . . .

"To consider lubrication systems, the ideal, which in the writer's mind is a fully forced system, is as rare in America today as it was in Europe ten years ago, but the old-fashioned plain splash system is giving way to modifications which aim at controlling the amount of oil available by each cylinder. There is a strong tendency to divide the bottom half of the crankcase into separate divisions—one for each cylinder—and to feed these separately by an external supply pump. . . . In other words, in cars which pride themselves upon their lubrication system one finds a more or less faithful copy of a 1907 Mercedes system, while those who are less particular employ an adaptation of one or the other of the 'mechanical' lubricators commonly associated in Europe with the name of 'Dubrulle.' A very few firms are using the trough system with a circulating distributing pump, and no doubt the fact of the Stearns and Columbia companies having taken up the Knight engine will result in still further popularizing this particular method of oiling. . . .

"In cooling, the American designer has a much harder problem to attack than anyone in Europe, for the cooling system must be capable of performing satisfactorily in air temperatures varying from 40 degrees below zero up to more than 100 degrees above. . . . This being so, freezing troubles are very often heard of, and it is the absence of winter trouble that has been the war cry of the Franklin company, who have now for many years pinned their faith to an engine with forced circulation air cooling."

In respect to carburation he observes that the ability to procure fuel "at an average price of 5d. per gallon" has not encouraged manufacturers to elaborate carburettors to any great extent. "Only in quite a few instances are cars supplied with carburettors by their own makers; specializing firms with very large outputs controlling practically the whole of this manufacture. . . . Still, speaking generally, carburettors are of the crudest possible nature, few of them being comparable for a moment with any of the better known devices in England, from the point of view of either power, flexibility or economy."

"In silencer design no great differences

are apparent, except that the public demand and receive a very much smaller degree of excellence. Also an exhaust cut-out is fitted on every chassis, and is in use in 90 per cent. of country running by the majority of drivers. The reason for this is not easy to find, being, in fact, only capable of explanation on the assumption that the driver enjoys the noise created."

One point that the British critic does find in favor of the American engine, however, is that of the uniformity of the product—a characteristic that never ceases to amaze the European manufacturer of no matter what sort of machinery. The great care exercised in the balancing of fly wheels is one reason which he holds as partially accountable for the phenomenon. . . .

After remarking the general use of the leather-faced cone type of clutch, with the secondary importance of the multiple disk type, which correspond with practice abroad, he comments favorably on the so-called dry-plate type of clutch, which a number of American designers have now come to look on with favor. The cork insert plate clutch also impressed him as having good qualities. His frankest appreciation, however, is reserved for the typically American aluminum body, his observations concerning which are well worth repeating.

"It has already been remarked," he says, "that the American chassis is usually designed to be more or less flexible, and that the principal components are not so attached to the frame as to increase its natural rigidity. This being so, it is easy to see that special difficulties will be met with in making bodies, because, if the frame is to be allowed to whip, the body must bend as well. Now, with the ordinary European body, in which the strength is all supplied by wood, and the metal panels are mere loose insertions, continual stressing by frame flexion results in the more or less complete disintegration of the whole structure. The wood frames work loose at all their joints, the panels become loose in the wood, the doors jam or gape, and the whole body rattles and groans. To get over this, American engineers have given very serious attention to the problem and have produced bodies made, in some cases entirely of metal, and in other cases principally of metal, with the simplest possible strengthening. By far the most interesting bodies, however, are those employed exclusively by the Pierce-Arrow Company and by a few other concerns as well. These are made entirely of cast aluminum, and in an open body there will be about half a dozen castings. . . . Having of themselves no very great strength, this allows a sufficient movement in the door spaces to permit the frame to give without straining the body, and, for transverse vibration, there is a certain amount of elasticity in the aluminum itself sufficient to compensate for the flexion. As a result, cracks do not appear even after long use. . . .

"Another type of body, and this perhaps is the most extensively used, derives its strength from a wooden frame, but the whole of the exterior surface, including the beading, is hammered sheet aluminum. . . . Although such a body is not so strong as the cast aluminum structure, it possesses a more or less flexible surface entirely free from joints. Thus there is nowhere a chance for cracks to appear, and no wood-work to paint."

"Covered bodies are not very common, the landaulet being quite rare, and the limousine or coupe seems to be regarded as only suitable for use by elderly people or for purely town work. As the roads are bad enough to put serious difficulties in the way of the ordinary open-body builder, it is easy to see that the task for the constructor of the limousine is very hard indeed, and this perhaps accounts for the comparative scarcity of the closed body. Another point which must exercise some influence as well, is the popularity of horse drawn vehicles of the buggy type, in which there is no more shelter and protection for the occupants than that provided by a folding cape cart hood. . . .

"In curious contrast to the bodywork the wooden wheel is supreme in America, although there are indications that steel will replace it before very long. The wire wheel is more rare than it was in England in 1903, and the few sets which have been imported are regarded more as mechanical triumphs than practical improvements. Thus one designer told the writer that, although he had been experimenting with a set of British-made wire wheels for some time, he was afraid to use them when in very rough country, because they did not 'look strong.' In other quarters, however, it is realized that the strength of the steel wheel must result in its becoming universal sooner or later, and lateral rigidity is of such enormous importance on rough roads that the case for the steel wheel is twenty times as strong in America as in Europe. . . .

Whatever the shortcomings of present engine design, he thinks that development will be rapid in the future; several proposed new valve systems having attracted his attention while here. "Of course," he adds in respect to the trend of moment, "the adoption of long strokes will act again just as it has here, by producing lubrication, vibration and noise troubles; so it is likely to be quite three years before the average American engine is as good as is the average European engine now."

"In transmission work Europe is, of course, ahead in respect to worm drives, and the better success of many of the American firms in the endeavor to procure quiet running bevel gears will retard the adoption of the worm. Also the question of clearance between the axle and either the road or the floor boards counts for so much more in America that the difficulty of applying the worm is greater."

HERE IS GENUINE PATHFINDING

Seattle Motorist Undertakes Stupendous Task of Blazing Route to British Columbia—Purposes in View.

The word "pathfinder," which some sixty or eighty years ago really meant what it said—namely, the "finding" of a path

sible, and openly expressed their opinion that the pathfinders would never reach their goal. Nothing daunted, however, the party left Seattle on August 28th, to the tune of merry music and accompanied by a procession of a score of automobiles, headed by the mayor. At last reports, Sands still was deep in the wilderness. One of the purposes of the trip is to find a feasible route for the highway which is to be

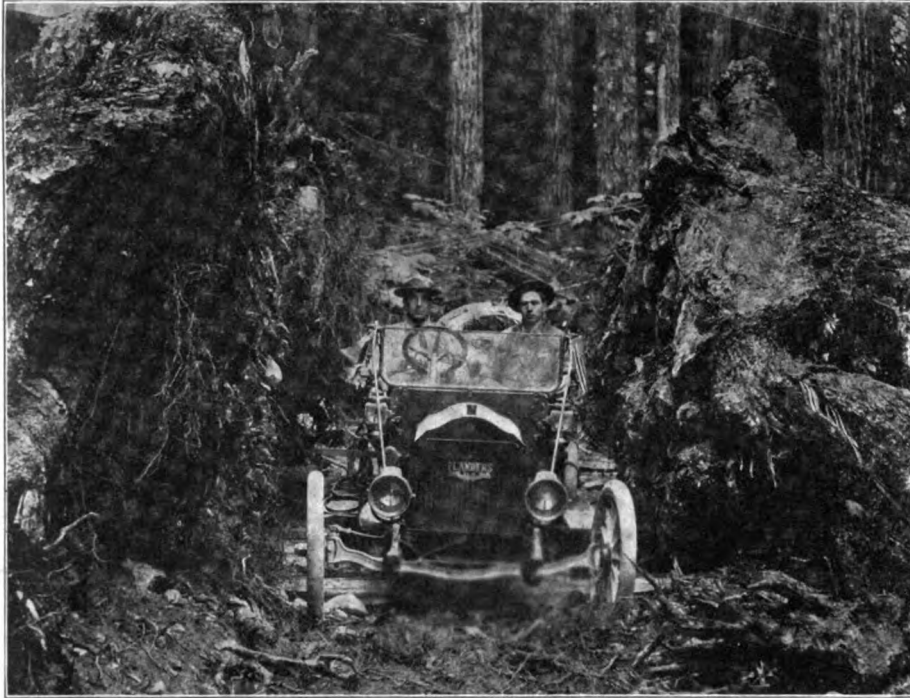
by British Columbia; another purpose is to secure the glory and a handsome trophy offered by a Hazelton firm for the first motorist to complete the journey by the overland route.

Connecticut Carries Reciprocity Further.

Following the passage of amendments to the present motor vehicle laws in Connecticut, one of which was designed to prevent an owner or driver of a motor vehicle from being held up on a mere technical violation of the highway laws and permitting him to be released on his own cognizance, Secretary of State Rogers corresponded with the departments of Rhode Island, Massachusetts, Vermont, New York and Pennsylvania, asking that similar treatment of Connecticut owners be assured by the authorities of these States. Only Massachusetts, however, has been able to give this assurance, establishing a complete reciprocity agreement between these two States.

The Massachusetts Highway Commission has announced that if a Massachusetts operator should be arrested for any violation of the motor vehicle laws of Connecticut, and gives his own personal recognition to appear in court and does not appear as agreed, the commission, upon receiving proof of the facts, would consider such action a sufficient cause for revocation of the license or for the suspension of it for a period of at least sixty days.

As a matter of fact the commission has already taken this action in certain cases



SANDS AND HIS FLANDERS BLAZING WAY THROUGH VIRGIN FOREST

through trackless desert or forest—has been badly overworked since the automobile made its appearance, and now is so often applied to pleasure jaunts on well-made roads preparatory to "reliability runs" and endurance contests, where the terms "laying out a route" and "finding a path" are confused and wrongly used, that "pathfinding" has lost its meaning. The exploit of P. E. Sands in a Flanders "20" in the heart of the Canadian wilderness, however, comes nearer to real pathfinding than anything hitherto accomplished in this line. The accompanying photographs give some slight idea of the difficulties encountered and the obstacles to be overcome.

Sands is manager of the E-M-F Northwest Co., in Seattle, Wash., and his intention is to reach Hazelton in British Columbia, by the overland route, a mere matter of 1,000 miles of mountains and seemingly impenetrable forests. The car carries a complete outfit for temporary road making, for hewing a way through the forest, for blasting rocks, and even building bridges over mountain torrents. It weighs empty 1,675 pounds, but carries a load of almost a ton in weight.

When the plan first was discussed, the officials of British Columbia advised the E-M-F manager that the trip was impos-



FORDING A STREAM IN THE UNTRAVELED MOUNTAIN WASTES

constructed by the provincial government from the coast to Hazelton, and for which the funds already have been appropriated

where Massachusetts operators have not appeared when summoned by the courts of other States.

THAT'S WONDERFUL WHEN YOU CONSIDER that in these events, while entered only in her own class, her merit scores at the end make those of cars in the higher priced classes look cheap indeed.

TAKE THE TWIN CITY RUN—Minneapolis to Helena, Montana, over prairie trails and mountain passes, in which such cars as Packard, Stoddard-Dayton, Abbott-Detroit, Simplex, Maxwell, Cole, Krif, Hupmobile and other cars failed to finish with perfect scores, and two out of three Flanders "20's" did.

IS PRICE ANY INDICATION of the road ability, the staying qualities, the reliability and the capacity for standing hard knocks?—surely not in view of these splendid victories of this "20" horse-power \$800 car.

NO, IT CERTAINLY IS NOT—we have never claimed that the E-M-F "30" was a better car than the three speed Flanders "20." The thirty is a little larger—ten inches longer wheel base, will go faster—say 55 miles per hour as against the 47 that any Flanders Touring car will go; but it won't—and no car made will—climb a hill better; it won't—and no car made will—stand rougher usage or perform so well month in month out with so little care or attention or expense.

FLANDERS "20" IS MADE OF SAME high grade steels—the best the science of metallurgy knows how to produce—by the same careful methods and in the largest plant in the world devoted to the making of one model. We make every part—"from pig iron and the raw steel bar to the finished car." And we guarantee every car for a year, giving the buyer a bond signed by General Manager Walter E. Flanders himself.

FLANDERS "20" IS YOUR CAR—it is the ideal car for the man who does not feel he can afford, or who does not care to pay more than \$1,000 into an automobile—whether it be the one car he and his family shall use for all purposes, or an auxiliary car for the rich man who wishes to save his big, expensive, more cumbersome touring car or limousine.

DELIVERIES—YES, THAT'S THE ONLY TROUBLE—we can't seem to catch up with the demand—can't promise you immediate delivery. August was the biggest month in our history. September will surpass it by 500 cars—shipping 125 Flanders "20" cars per day now and increasing our factory facilities just as fast as we can. Bought the original Ford plant last month and putting on 1,000 more men. This will increase our output 20 per cent. Trying our best to catch up—but people have come to appreciate this car and the demand still leads the supply.

ONLY WAY IS TO SEE YOUR LOCAL DEALER at once. Get your order in, pay a deposit, so the order will be sent to the factory and given its regular serial number—then you won't have to wait long. Every day's delay in placing the order makes two more days' delay in getting the car, for Flanders "20" is carrying everything before her, and the "tin cars" are losing ground fast. Flanders "20" has the call—but if you hurry you'll be "lucky."

NOW THIS IS ONLY ONE of several great feats the new three speed Flanders "20" has performed during these past few weeks. We set out to show that in this three speed, fore-door model we have a car that has not a superior in the world—and not an equal outside of our own E-M-F "30." The staying qualities, speed and hill climbing ability of which is so well known that it no longer needs demonstrating.

JUST LISTEN TO THIS: Flanders "20" has won every event she has entered—has more reliability runs, more hill climbs to her credit than any other car this season. Not a day passes but she adds one or two more victories to her credit—one or two more trophies to her collection.

Flanders "20" Wins

1. **IOWA'S LITTLE GLIDDEN:** Flanders "20" made three perfect road scores out of a possible three. Going some!
2. **TWIN CITIES TO HELENA, MONTANA:** 1,390 miles over prairie trails and mountain passes—mud—hub deep in places. \$4,000 cars succumbed to the difficulties—Flanders "20" won 1st and 2nd—all the prizes there were.
3. **DEAD HORSE HILL:** At Worcester, Mass. This is America's Greatest Annual Hill Climbing Contest. Flanders "20" won first, clipping 47 seconds off previous record and making her nearest competitor look like an also-ran.
4. **ST. LOUIS TO KANSAS CITY Reliability Run:** Flanders "20" won 1st with score of 998 out of possible 1,000. Other cars penalized 150 to 999 points—and out.
5. **BUFFALO ENDURANCE RUN:** A test devised to eliminate all if possible. Proved to be four days of mud plugging—that's nuts for Flanders "20." Won first—of course.
6. **NEWPORT HILL CLIMB:** This was not a sanctioned meet but is the biggest event of the year in Indiana—worst hill in the state. An owner entered his own car—and he not only won in his class, but made a clean sweep of seven straight events in larger car classes. A 90 horse power Knox beat her time 2 seconds—hooray!
7. **DES MOINES, IOWA—Speed Event:** Two special racing cars came to town—fine frameup for a record. Dealer took stock car off the showroom floor—and cleaned them up—1st easily.
8. **SEATTLE TO HAZELTON, B. C.:** This was not a contest—for the very good reason that no other car has ever dared attempt the trip for gold medal offered two years ago. Flanders "20" went after it—through the wilderness. Brought it back, of course. This will long stand as a record of endurance for motor cars of any power or price.
9. **PATHFINDER FOR GLIDDEN TOUR—**first official car over the "Dixie Trail"—New York to Jacksonville, 1,490 miles in 10 days—average 149 miles a day. Chairman Butler of the A. A. A. says the cleanest job ever done in laying out a Glidden Route—a wonderful car.

and other data must be gotten out. We can't allow more than sixteen days of that for the pathfinding."

"WHY, WHAT DID YOU EXPECT, MR. BUTLER?" asked Driver Soules, who feared he had misunderstood his instructions—and Soules never does that.

"WHY I EXPECTED an E-M-F '30"—the old war horse that has laid out so many routes. I surely did not expect a smaller car and I am surprised that W. E. Flanders, Manager of the Studebaker automobile business would risk his and their reputation with the 2,600 dealers of the Studebaker Corporation in such an important event on so light a car. What will a 20 horse-power car do on the slippery clay roads of North Carolina and the sand trails of Florida? Why—!"

"WHAT WILL SHE DO?" asked Soules—now thoroughly on his mettle—"I'll tell you what she'll do, Mr. Butler: She'll make the \$5,000 cars that have laid out former Glidden Tours look like thirty cents—plugged."

"WHAT WILL SHE DO?"—you say you can only allow sixteen days; that's an average of eighty-five miles per day. We—this little three speed car and me—will take your official party over that route on the tour schedule—that's ten days—and we will give them as comfortable a ride as they ever had—and we won't be late for supper once."

"WHY, THE E-M-F '30' TOOK 38 DAYS to cover the 2,600 miles from Detroit to Denver and return when pathfinding for the 1909 Glidden," said the chairman. "And that was a great performance." "That's true, Mr. Butler, but we make wonderfully good cars nowadays. That's just what we are going to prove to you."

"YOU'RE ALL RIGHT, SOULES," exclaimed the Chairman enthusiastically now. "You have the right spirit and it is very evident you believe in your Flanders '20.' Go to it—and if you do the trick, hanged if I won't buy one—I begin to like the looks of her. She certainly is a trim looking little rig."

DRIVER SOULES WAS PLEASED—but he took issue with the chairman on one point. She isn't so "little." Mr. Chairman—she has 102 inch wheel base; will carry five just as easily as four, and we'll show you there's the biggest 20 horse-power under that bonnet you ever saw in a car.

WELL, TO MAKE A LONG STORY SHORT, she did it and she did it magnificently. Each succeeding day when Pathfinder Westgard wired the head office the surprise of Chairman Butler and his associates became greater.

STUDEBAKER CORPORATION
E-M-F Factories, Detroit, Mich.



995,450. Storm Apron for Vehicles. Oliver P. Fritchle, Denver, Colo., assignor to Fritchle Automobile & Battery Co., Denver, Colo., a Corporation of Colorado. Filed Jan. 18, 1909. Serial No. 472,852.

1. The combination with a vehicle of a storm apron comprising two portions flexibly connected along an upwardly curved line, the lower portion of said apron being fastened at its lower edge to the inside of the vehicle, and co-operating detachable means for securing to the hood or top of the vehicle, the upper part of the lower portion of said apron and the free edges of the upper portion.

995,468. Nut Lock. William F. Kenney, Providence, R. I. Filed Nov. 22, 1909. Serial No. 529,474.

1. In a nut lock, the combination of a bolt having upon its exterior both right and left hand screw threads, with a holding nut and a locking nut fitting the said screw threads of the bolt, respectively, one of the nuts being provided with an externally screw-threaded tenon, and the other with an internal screw thread, and also with an internal bearing shoulder adapted for engagement with the said tenon, the said engaging parts of the nuts being screwed up to contact with each other when the nut lock is in use, whereby backlash in the action of the nut lock will be prevented.

995,471. Roller-Bearing with Looped Cage. Charles S. Lockwood, Newark, N. J., assignor to Hyatt Roller Bearing Company, Harrison, N. J., a Corporation of New Jersey. Filed June 18, 1910. Serial No. 567,548.

1. In a roller bearing, the combination, with inclined bearing seats and a series of inclined tapering rolls converging toward a common center, of a sheet metal cage comprising a series of integrally connected loops with sides inclined toward a common center and extended the entire length of the rolls.

995,482. Automatic Reversing Switch for Gas Engines. James M. Rhett, Beaufort, S. C. Filed Oct. 15, 1910. Serial No. 587,276.

1. In a reversing switch for gas engines the combination of a sparking circuit; magnetic means for breaking said circuit; means for controlling the action of said magnetic means; and means for locking said magnetic means and automatically releasing the same after a predetermined interval, substantially as described.

995,484. Valve. Lee H. Rogers, Parsons, Kan. Filed Feb. 21, 1911. Serial No. 609,975.

1. A valve of the character described comprising a case consisting of a body portion and an interior tubular extension formed on the wall of the body portion, a seat member removably arranged in the valve case, the seat thereof being disposed in spaced relation to the open end of said tubular extension, and a spring seated valve member movable in the tubular extension, said valve member having a tubular portion

to receive the end of the seat member, substantially as and for the purpose specified.

995,489. Ignition System for Internal Combustion Engines. Claude L. Silva, San Diego, Cal., assignor of twenty-five and one-half one-hundredths to Percy J. Benbough and forty-nine one-hundredths to H. Coon, John A. Gillons, Clair A. Nelson, N. H. Hargrave, W. V. O'Farrell, D. A. Garra, Lyman P. Owen, A. O. Walker, N. D. Kuhlman, F. M. Madison, V. E. Hawkins, I. T. Brockett, and P. J. Benbough, San Diego, Cal. Filed Feb. 23, 1910. Serial No. 545,268.

1. In an ignition system, a current source, two condensers in series having their neutral point grounded and their free terminals connected to the current source, an induction coil having its primary and secondary wiring connected to a pole of the current source, an ignition device in the second circuit, and a timer in the primary circuit.

995,490. Ignition System for Internal Combustion Engines. Claude L. Silva, San Diego, Cal., assignor of twenty-five and one-half one-hundredths to Percy J. Benbough and forty-nine one-hundredths to H. Coon, John A. Gillons, Clair A. Nelson, N. H. Hargrave, W. V. O'Farrell, D. A. Garra, Lyman P. Owen, A. O. Walker, N. D. Kuhlman, F. M. Madison, V. E. Hawkins, I. T. Brockett, and P. J. Benbough, San Diego, Cal. Filed Feb. 23, 1910. Serial No. 545,269.

1. In an electric ignition system, twin condensers connected in series, a charging circuit to which the free terminals of the condensers are connected, ignition coils having their primaries connected, respectively, to opposite sides of the charging circuit, and each of said primaries being also connected to the neutral point of the condensers, and a timer in the circuits of the primaries, said timer being located between the primaries and their connections with the aforesaid charging circuit, for alternately closing the primary circuits.

995,502. Automobile Wheel with Pneumatic and Spring Hub. Charles E. Wade, Masonville, and Charles J. Lagerwall, New York, N. Y. Filed Oct. 19, 1910. Serial No. 587,905.

1. In a device of the class described, an inner hub; an auxiliary rim; a movable member seated in the hub for sliding movement in one direction; a plate applied to the rim and provided with inwardly projecting lugs; guides secured to the lugs and adapted to receive the movable member for sliding movement in another direction; yieldable means for limiting the sliding movement of the movable member; there being communicating oil ways in the guides and in the movable member accessible from the exterior of the device, and discharging between the movable member and the hub.

995,521. Gasolene Separator. Joseph Buhr, Norwood, Ohio. Filed Mar. 11, 1911. Serial No. 613,880.

1. In a gasolene separator, a receptacle for the liquid to be treated, and a plurality of vertical partitions dividing the receptacle into compartments, with free passageways at the bottom of the partitions, and a supply pipe opening into the upper end of one of said compartments, with openings into

the upper end of the adjoining compartments, and a discharge opening from the receptacle below the level of the openings in the partition, and another discharge opening from the receptacle substantially on a line with said partition openings.

995,530. Internal Combustion Engine. Claude M. Garland, Urbana, Ill. Filed July 5, 1910. Serial No. 570,346.

In an internal combustion engine of the character described, a substantially horizontally arranged explosion cylinder provided with inlet and exhaust means, valves to control said means, a lever having pivotal connection intermediate its ends with said explosion cylinder, and disposed to operate one of said valves, means to operate said lever synchronously with the speed of the engine, a bracket rigidly connected with said cylinder, a pump connected with said bracket, connecting means between said pump and lever, a tank having communication with said pump, a three-way valve structure, a conduit connecting said valve structure and pump, a by-pass conduit connecting said valve structure and tank, a conduit connected with said valve structure and having its discharge end extending through the explosion cylinder for supplying a cooling medium within said cylinder at a point near the forward end of the same, a centrifugal governor to actuate said three-way valve structure, an outer casing surrounding the explosion cylinder for forming a water space therebetween, a conduit for establishing communication between said water space and tank, a conduit for supplying material within the outer casing, and a check valve connected with the third named conduit.

995,543. Sparking Plug. Emil Kuhn, Stafa, Switzerland. Original application filed May 21, 1910. Serial No. 562,686. Divided and this application filed Nov. 22, 1910. Serial No. 593,659.

1. In a sparking plug the combination of a steel body provided with external and internal screw threads, an insulator connected with said steel body said insulator having a central bore, an electrode movably arranged in said insulator, a head on said electrode provided with threads adjacent the internal threads of the steel body, a cap screwed on said insulator, a spring abutting against said cap and said electrode, and a wire terminal connected electrically with said electrode.

995,547. Starting Device for Explosive Engines. Arthur Mason, Pike, N. Y., assignor of one-half to John A. Levis and one-eighth to Howard W. Shannon, Rochester, N. Y. Filed Apr. 27, 1910. Serial No. 558,038.

1. In a starting mechanism for explosive engines, the combination with a clutch member adapted to turn with the engine shaft, of a crank arm adapted to extend radially of the shaft and mounted to swing loosely on the latter, a handle portion on the crank arm having a normal position substantially parallel with the shaft and movable angularly with relation thereto and a second clutch member rotatable with the crank arm about the axis of the shaft, and co-operating normally with the first, the handle portion and one of the clutch members being operatively connected so that the latter moves out of co-operation with the other clutch member when the handle portion is turned angularly with respect to the shaft.

995,608. Wheel Hub and Axle Bearing. Herbert Kintz, Sharpsburg, and John P. McConnell, Pittsburg, Pa. Filed Feb. 16, 1910. Serial No. 544,248.

1. In a vehicle hub, an axle, bearing blocks rotatable on the axle, a drum concentric with the axle and having shoulders on its inner circumferential surface and having U-shaped apertures formed between said shoulders, plates slidable on said shoulders and each having a hole therethrough, radially disposed pins fixed to said bearing blocks and entering said apertures through said holes, said pins being of less radial extent than the internal radii of said inner surface, to allow limited play of the bearing blocks relative to the drum, and springs

around said pins interposed between said plates and said bearing blocks for absorbing shock substantially as specified.

995,573. Resilient Tire. George W. Rowell, Portales, N. Mex. Filed Dec. 5, 1910. Serial No. 595,753.

1. A resilient tire for vehicle wheels comprising an inner casing, a series of radially projecting inner spring holding plates secured to said casing, a series of guide plates arranged in said casing between said inner spring holding plates, a series of coiled springs arranged between said holding plates and engaged with said guide plates, a series of outer holding plates adapted to be engaged with the outer ends of said

springs whereby the latter are connected and held in position in said casing, an outer casing adapted to be engaged with the outer ends of said springs, and means to hold said casing in operative engagement with the springs.

995,552. Transmission Gearing. Alden E. Osborn, New York, N. Y. Filed June 4, 1908. Serial No. 436,552.

1. In a transmission gearing the combination of a gear system, a movable mount having connection with an element thereof, means for restraining at will the motion of the mount, and controllable means for positively driving the mount independently of the action of the gear system but at a differing speed therefrom.

WANTED—Young Men

To manage branch stores which we will open in the near future. Those thoroughly acquainted with automobile supply business. In answering state age, whether married or single, experience, give names of houses worked for and length of time with each firm. Give references. Address by letter only.

CHAS. E. MILLER, 97 Reade St., New York City

FIAT

"THE MASTER CAR"

35 H. P., \$4,500, Open Bodies; \$5,500, Limousine Bodies

(Completely Equipped)

The Fiat Agency Policy Is One of Permanency

POUGHKEEPSIE

F.I.A.T.

NEW YORK

Runmobile

Prices include complete equipment of fore-doors, top, windshield, gas lamps, generator, three oil lamps, horn and seat. All models have 4-cylinder, 20 h. p. motor, sliding gears and Bosch magneto.

Runabout	\$750	Touring Car	\$900
Torpedo	\$850	Coupe	\$1,100

Fore-doors on Runabout and Touring Car.

HUPP MOTOR CAR COMPANY
1254 Jefferson Avenue Detroit, Michigan

WINTON SIX

The Six that Converted the Industry

The Winton Company was the first company in the world to make Sixes exclusively. For years it was the only company that dared declare the six superior to all other types. Today many makes are advertising sixes, because the Winton Six convinced them that the Six is the one superior car. The car that converted the industry is the safe car for you to buy. 48 H. P., self-cracking motor, \$3000. Send for catalog.

The Winton Motor Car. Co.

426 Berea Road, Cleveland, O.

SHAWMUT TIRES

SOLD EVERYWHERE

SHAWMUT TIRE CO., Boston, Mass.

B & L CASTOR

The B & L Castor Front Axle

WILL BE MANUFACTURED BY

Weston-Mott Co.

FLINT, MICHIGAN

who are one of the oldest, largest and best known axle manufacturers in the world.

The Weston-Mott Company's engineers made careful, exhaustive tests of the B & L Castor Front Axle and substantiated all of our claims before they would consider making them.

This gives you the assurance that you get the best of mechanical construction, backed by the experience that thirty years of axle making is bound to produce.

This means to the manufacturer that he can have the B & L Castor Front Axle made by the same firm who makes his rear axles, and whom he knows to be one of the most reliable in the business today.

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MOTOR THE WORLD

Vol. XXIX.

New York, U. S. A., Thursday, October 5, 1911.

No. 2

TO LITIGATE SHAFT DRIVE PATENTS

Baker Brings Two of Them to Bear and Files Suits for Infringement—Concerns Only Electric Vehicles.

Quite unexpectedly the shaft drive, as applied to electric vehicles, has become a matter of litigation, which, it is intimated, may prove to be of a widespread nature. The Baker Motor Vehicle Co., of Cleveland, O., is the aggressor in the matter, and while it does not claim that the shaft drive is a matter of basic patent, or that its construction has been infringed by all manufacturers of all electric vehicles, it asserts that there are a number of such infringements, and it has inaugurated proceedings by instituting suit against two of its alleged infringers, the Rauch & Lang Carriage Co. and the Broc Electric Vehicle Co., both located in Cleveland.

The suits which were filed in the United States Circuit Court in that city, allege infringement of patent No. 960,897, covering "running gear construction," and No. 987,358, covering an "electric motor vehicle," both of which were issued during 1910 to Emil Gruenfeldt and by him assigned to the Baker company. Gruenfeldt, who several years ago came to this country from the German Daimler works, is the Baker company's engineer.

Lewis Takes Over Its Own Sales.

The Lewis Spring and Axle Co., of Jackson, Mich., has not only terminated its selling arrangement with the American Distributing Co., but has taken over the office and display rooms at 1003 Woodward avenue, in Detroit, which previously were occupied by the distributing company. The Lewis people have also transferred their mechanical expert, J. D. Linderman, to the Detroit office, where he will be stationed at all times. Incidentally, the company has found it necessary to add 60,000 square feet floor space to its factory in Jackson,

which makes a total of 360,000 square feet devoted entirely to the production of automobile springs, axles, transmissions, etc.

Newerf to Make Tires in California.

W. D. Newerf, who for many years has been engaged in the sale of tires on the Pacific coast, and who at present maintains a large establishment in Los Angeles, is credited with having practically completed arrangements for the erection and operation of a full fledged tire factory on the Coast, the exact location being one of the few things that remain to be settled. It is stated that he already has contracted for the necessary machinery and for the services of an experienced superintendent.

Two Motor Truck Projects in Marion.

The Harwood-Barley Mfg. Co., of Marion, Ind., has added motor trucks to its other productions; for the purpose it has acquired a disused brass bed factory in West Marion. George R. Sheldon, representing several residents of Marion, also is concerned with a motor truck project. He has made an offer for the plant of the Indiana Auto Parts Co., which has been in the hands of a receiver for about a year, and if the offer is accepted a company will be formed to build trucks therein.

Immels Take Up the Electric Truck.

John Immel & Sons, of Columbus, O., who are among the oldest manufacturers of horse-drawn vehicles in that State, are about to engage in the manufacture of electric trucks, and will also establish a department for the repair and repainting of automobiles of all sorts. To serve those purposes they are having plans drawn for the erection of a 62x85 feet addition to their present plant on Fulton street.

Splitdorf Locates Branch in London.

Charles F. Splitdorf, the well-known New York ignition specialist, has established a London branch at 41 Great Portland street W. C. It is his purpose to push the sale of everything from the Splitdorf magneto to the Splitdorf spark plug.

SHOW QUESTION SETTLING ITSELF

N. A. A. M. Practically Assumes Control and One Show Era Is in Plain Sight—Makes Its First Allotments.

With the abandonment of the so-called independent show, which was to have been held in Grand Central Palace, New York, in January next, and with the future of its promoter, the Automobile Manufacturers' Association of America, in doubt, and with the end of Madison Square Garden also in sight, matters rapidly are shaping themselves toward that desideratum, one show, open to all. In fact, they already have so well shaped themselves that this week the National Association of Automobile Manufacturers made known that in 1913 there will be but one show in New York.

With the demolition of Madison Square Garden, which will begin in February next, Grand Central Palace will be the only show building remaining, and as S. A. Miles, general manager of the N. A. A. M., is president also of the exhibition company, which practically controls the Palace, that the New York shows of the future will be held under the auspices of the N. A. A. M. is plain to be seen. Indeed, it is well known that even in the Automobile Board of Trade the opinion has been so strong that the promotion of shows should be turned over to the National Association of Automobile Manufacturers, which includes practically all of the Board of Trade members, that the Board of Trade may be expected shortly to take action formally expressing this opinion.

Manufacturers of cars already have been allotted space in the last Board of Trade show which will be held in Madison Square Garden in January next, and yesterday space was similarly apportioned for the N. A. A. M. show in Grand Central Palace, and also for the Chicago show. For the Palace show 32 allotments for exhibits of passenger cars and 22 for commercial

vehicles were made. For space in Part I—pleasure cars—in the Chicago show, there were 102 applicants, of which 68 are members of the N. A. A. M. and 34 are outsiders. For space in Part II—commercial vehicles—there were 24 applications from N. A. A. M. members and 28 from outsiders, a total of 52. While there will be such that any considerable number of late comers will swamp the management.

The apportionment of space for accessory exhibits has not yet been made for any of the shows, and will not be made until the Motor and Accessory Manufacturers have taken care of their members.

Buffalo League May Build Tire Factory.

According to reports printed in Buffalo, N. Y., the International Automobile League Tire and Repair Co., which was incorporated last year by the proprietors of the International Automobile League, has purchased a tract of land, having a frontage of 750 feet at Northland avenue and Chelsea Place, Buffalo, on which, it is alleged, it will erect a \$600,000 tire factory. Whether the league graciously will permit its "members" to purchase stock has not yet developed. The league, which, despite its title, is a one-man corporation, has on several occasions obtained undesirable publicity and many times has been charged with peculiar practices. Only a few months since it was brought into court by one of its "members," who alleged that an old tire had been palmed off on him as a new one.

Moreland Completes His Truck Company.

Watt L. Moreland, the Los Angeles designer, who has evolved a truck incorporating a number of special features, has completed the organization of the company which will manufacture it. It is styled the Moreland Motor Truck Co., and has elected these officers: R. H. Raphael, president; C. J. Kubach, vice-president; Sheldon Morris, secretary and treasurer; Watt J. Moreland, general manager. Ground has been broken for the erection of a factory in Los Angeles, at Main and Wilhardt streets. It will have a capacity for 300 trucks per year. Not the least interesting of Moreland's inventions which will be applied to his vehicle is a gasifier attached to a standard carburetter, which permits the use of fuel distillates other than gasoline.

Elkhart Finally is Adjudged Bankrupt.

The Elkhart Motor Car Co., of Elkhart, Ind., against which a petition in bankruptcy was filed in June last, has, after a lapse of several months, been adjudged a bankrupt; a meeting of its creditors has been called for the 7th inst., when a trustee will be selected. At the time the petition was filed, the Elkhart company, alleging that it was solvent, asked for a jury trial, but later withdrew its application. Shortly before the petition was filed against it, the Elkhart company disposed of its plant to

the Elmer Auto Corporation, which now has a six-cylinder car, styled the Lohr, almost ready for the market.

Changes Among Prominent Tradesmen.

Bert S. Bingham, who for two years has been Pacific Coast manager for the Regal Motor Car Co., of Detroit, has been transferred to New York, where he will have charge of the company's Eastern district. He already has assumed the duties.

Homer C. Lathrop, who has been identified with the organization since its inception, has been elected secretary-treasurer of the Henderson Motor Sales Co., of Indianapolis, distributors of Cole cars. He succeeds his father, Dr. H. L. Lathrop, who resigned to devote himself wholly to his banking interests.

H. A. Goddard, who for several years was in charge of the automobile department of the Chicago Evening American, has been appointed general sales manager of the Gramm Motor Truck Co., of Lima, O. He got busy at once, sailing on Thursday last to Europe to study foreign conditions, with a view of enlarging the market for Gramm trucks.

E. Louis Kuhns, for many years manager of the Studebaker Corporation's Chicago establishment, has been advanced to the management of the big company's New York depot. Lafayette Markle, assistant sales manager of the Studebaker Detroit factory, succeeds to the vacancy created by Kuhns' promotion. H. E. Westerdale remains assistant manager of the Chicago branch.

Berton B. Bales has resigned the presidency of the American Automobile Mfg. Co., of Louisville, Ky., and New Albany, Ind., and will be succeeded by George H. Wilson, of the former city. The company, which transported a Jonz car and some Jonz machinery from Beatrice, Neb., about a year ago, has not been very active in the industry despite the publication of the most elaborate and highly-pitched catalog that ever offered automobile shares to the public.

George Collister Claimed by Death.

George Collister, of the firm Collister & Sayle, Cleveland, O., and one of the best-known dealers in the East, died at his home in that city Tuesday last, 3rd inst. Bright's disease complicated by heart trouble caused his death. Collister was one of the many bicycle pioneers who early gravitated into the automobile business. At all times he was an active man, who usually was present wherever there was "something doing," and because of the fact few retailers were more widely known in either the bicycle or automobile trades.

Coffin Chosen to Speak in London.

Howard E. Coffin, chief engineer of the Hudson Motor Car Co., and former president of the Society of Automobile Engi-

neers, has been selected as the American representative who will deliver an address at the joint technical meeting with the English Institution of Automobile Engineers, which will be a feature of the S. A. E.'s visit to Europe next month. "Chassis Design" will be the subject which Coffin will handle, that being a point in which some European authorities consider Americans lead the world. The joint technical session at which Coffin will deliver his address will occur in London November 8th.

Ricketts Seeks to Form Third Company.

J. W. Ricketts, who, when located in South Bend, Ind., successively organized the Ricketts Automobile Co. and the Diamond Automobile Co., both of which went bankrupt, is endeavoring to form what will be known as the States Motor Car Co., in Michigan City, Ind. It proposes to acquire some of the machinery which at present reposes in the idle plant in South Bend and to use it to produce a \$450 runabout.

Bankruptcy Action Follows Van Receiver.

Bankruptcy proceedings have been instituted in the United States Circuit Court against the Van Motor Car Co., of Grand Haven, Mich., which in July last got into financial difficulty which led to the appointment of a receiver by the State court. The company built a low-priced runabout, and although it made no great headway it is alleged to have amassed liabilities of \$85,000. Its assets are placed at \$45,000.

Coates-Goshen Claimed to Be Bankrupt.

The Coates-Goshen Co., of Goshen, N. Y., the principals of which once built a car of that name, which latterly has done chiefly a retail or small jobbing business in supplies, has been petitioned into bankruptcy by the Michelin Tire Co. and two other creditors. It is alleged that the company on September 2nd admitted in writing its inability to meet its obligations. Its assets are estimated at \$9,000.

Lippard-Stewart Leases Buffalo Plant.

The Lippard-Stewart Motor Car Co., of Buffalo, which recently was formed to manufacture trucks, has leased the plant in Buffalo formerly occupied by the Thomas Taxicab Co. It took possession on the 1st inst., and it now installing the necessary machinery. Additional capital which has been invested in the company during recent weeks has permitted it to enlarge its plans considerably.

Hupp Opens a Branch in New York.

The Hupp Corporation, of Detroit, has opened a New York branch at 1989 Broadway, in the building previously occupied by the bankrupt Carhartt Automobile Sales Co., where both the R. C. H. gasoline car and the Hupp-Yeats electric will be shown. The branch is in charge of R. J. Lacair, who previously was New York manager for the Metzger Motor Car Co.

WANTS TRADE TO SELL INSURANCE

Philadelphia Dealers Give New Project a Boost—Insurance Policies That Would Be Handled Like Accessories.

Taking the ground that the big insurance companies at present writing automobile insurance policies are badly messing things up and are raising their rates to unreasonable altitudes in order to cover up their mistake and make a big profit, a group of Philadelphia insurance experts have interested a number of Philadelphia dealers and have brought about the organization of a new automobile insurance enterprise, the stock of which is to be owned by automobile manufacturers and dealers, who will direct its management.

In order to cover the legal situation, two corporations are being created, one for the purpose of writing fire insurance and the other for casualty and liability, but the two companies will be as one, from a practical standpoint. Two charters are necessary because the law does not permit a liability company to write fire insurance, and vice versa.

The names selected are the Manufacturers and Dealers Motor Fire Insurance Co. and the Manufacturers and Dealers Motor Casualty Co., and, according to the promoters of the project, the companies are not only to write automobile insurance all over the United States, but are to exert powerful beneficial effects on motoring in general, not only in relation to the trade but to the public. In fact, some of the intended features of the concern's operation are almost altruistic in their nature. An organization committee already has been created with the following members:

George W. Hipple, president of the Philadelphia Automobile Trade Association, chairman; Ernest H. Greenwood, insurance expert, secretary; A. E. Maltby, manager of the Winton Motor Carriage Co.'s Philadelphia branch; E. B. Jackson, of the Packard company; W. P. Berrien, of the Stoddard-Dayton, and W. G. Foss, treasurer of the Foss-Hughes Motor Car Co., which handles the Pierce-Arrow in Philadelphia.

With this as a beginning, the organizers, of whom Ernest H. Greenwood is one of the most active, hope to interest motor car manufacturers and dealers throughout the country in taking stock in the combined companies, which will have a total capitalization of \$1,000,000. The manufacturers as a class already have been approached on the subject, and at the last meeting of the Automobile Board of Trade in New York City the Philadelphia men were given an audience and submitted their proposal, which, however, the Board of Trade referred to its conference committee. The plans for the project con-

plate a reduced cost of automobile insurance to the automobile owner; control of automobile insurance by the automobile trade; profits, which hitherto have gone to non-specializing insurance companies, to be diverted to the automobile trade; control of insured cars by manufacturer and dealer, and the elimination of the driver who makes "criminal" use of the public highway.

It is proposed that agents and dealers in automobiles shall act as agents for the companies, offering the insurance at the time of making a sale of a car. Beyond this there is to be no field force and no agents, nor will insurance be accepted through insurance brokers. There are to be supervisors, however, in each of the larger cities. The district manager in each of the larger centers will organize his local force from the dealers. It is planned that the active management or operation of the enterprises shall be in the hands of skilled and experienced insurance men employed for the purpose, but that the board of directors and executive committee will be made up of automobile men.

Advantage is claimed over the companies now writing automobile insurance by reason of the fact that with the latter "there is no attempt at standardization, no classification of risks, simply a blind tendency to raise rates, which are already too high." As against this, "these allied companies propose to make the moral risk the key to their entire plan." This means a strict classification of risks, depending upon the "moral standing" of the applicant for a policy, so far as concerns business honesty, operation of his car, and a regard for legal regulations. When an insured car is damaged, it is to be returned to the manufacturer himself or one of his authorized agencies, so that it may be properly repaired or rebuilt, thus "protecting his name," instead of being sent to some irresponsible shop for patching up.

Representing that "an insurance company is the only corporate organization which is in a position to demand an enforcement of the regulations governing the speed of motor cars on the public highways," the projectors propose to place a metal tag on each of its insured cars, so that violations of the contract of insurance by an owner will easily be spotted. The companies' recommendations as to road and motor vehicle legislation are also expected to have great weight with municipal and State governing bodies. Dividends to policy holders are to be paid out of surplus profits, after "reasonable dividends" to stockholders.

Col. George Pope Takes Vacation Abroad.

Col. George Pope, treasurer of the Pope Mfg. Co., and chairman of the Board of Trade show committee, sailed yesterday to Europe for a vacation. He will be absent about five weeks.

NOT EASY TO OPEN SOUTH AMERICA

Camacho Tried It and Returned Ten Years Sooner Than He Expected—Expenses and Conditions Met With.

Rich and attractive as the possible profits may be, after one is well established, the introducing of American-built automobiles in the two big cities of South America, Rio de Janeiro and Buenos Ayres, is no child's play, if one is to judge by the experience of Al Camacho, who, after considerable experience in selling motor cars on New York City's automobile row, recently went to South America in high hopes, but who is back in New York again, a sadder and wiser man. Almost needless to say, Camacho returned much sooner than he expected—some ten years sooner, to be exact. He also returned without the fortune he had expected to make in those ten years.

By special arrangement with the American Locomotive Co., Camacho sailed for Buenos Ayres last spring with several Alco cars, these being representative high-grade American products such as in his mind's eye he thought the wealthy South American motorists would take to. The cars were not even moved off the boat when he got down there.

"First crack out of the box," Camacho explained to a Motor World man, "it would have cost me \$500 for a foreign merchant's license to unload my cars. Then it would have cost me \$150 for a street tax receipt, to run them, and I would have been compelled to employ a local chauffeur, at about \$8 a day. So I reconnoitred. My father having been the Venezuelan Minister to the United States and my granduncle having been the George Washington of Venezuela, I speak Spanish perfectly and was well received. But I found the pace too swift for me to do business, at least a motor car business.

"Living economically it cost me \$22 a day at the hotel, and a man needs \$50 a day in American gold to get along, as in order to do business with the class who buy cars he must dress like a nabob, live like a lord, never walk and always be loaded with money. There are only two classes of people in Rio and Buenos Ayres, the very rich and the very poor. In Buenos Ayres they sell American \$5 shoes for \$25 a pair, have a \$5,000,000 theater and four miles of mosaic sidewalk laid by workmen imported from Paris for the job. French, Italian and German cars practically own the market. To introduce an American car successfully requires two or three years' hard work and an investment of a fortune in champagne and social extravagance. It was too big a proposition for my resources, so I sailed back with my cars."

POPE RENDERS ANNUAL REPORT

Development of New Car and Truck Eats Heavily Into Earnings—But Surplus is Increased, Nevertheless.

One of the most illuminating illustrations of the expense that attaches to the development and production of a new model, even by a long established manufacturer, and to changes involved in engineering practices, is contained in the annual statement of the Pope Manufacturing Co. for its fiscal year ending July 31, 1911, which was made public early this week.

Although the company's sales for the fiscal year amounted to \$4,081,486.82, an increase of \$71,286.88 over the sales of the preceding twelve months, the net earnings, \$214,119.22, represent a decrease of \$531,272.11. Despite the fact, \$76,227 was added to the surplus, which now amounts to \$936,430.85, the sum of \$377,337 having been added to the surplus account at the close of the fiscal year 1910.

The total account for the two years compares as follows:

	1911	1910
Income from operations*	\$169,310	\$664,496
Other income	107,928	127,989
Total income	\$277,238	\$792,485
Misc. losses and expenses	63,119	47,094
Net income	\$214,119	\$745,391
Preferred dividends	137,892	1275,784
Common dividends .....	.....	92,279
Surplus	76,227	377,337
Previous surplus	860,203	482,866
Total surplus	\$936,430	\$860,203

* After deducting manufacturing and producing costs, depreciation, replacements, renewals, administration, office and selling expenses.

† Includes dividends on preferred stock for years ended July 31, 1909, and July 31, 1910.

In presenting the report, Albert L. Pope, president of the company, explains the reasons for the decrease in net earnings and sums up the situation as follows:

"Depreciation on buildings, machinery, tools and equipment, amounting for the fiscal year to \$136,226.19, and accrued taxes, insurance and other expense items have been charged monthly to operations. Ample reserves have been set up to provide for possible loss in Accounts Receivable. Accounts Payable, as shown in the statement, are for current invoices which had not matured for payment on July 31st.

"The inventory has been taken at actual cost, any material—raw, manufactured or in process—not available for current needs, having been charged off. Buildings, machinery and equipment have been maintained in good condition, all current repairs having been charged to operations and not added to inventory values. All

bills for purchase of materials and equipment during the fiscal year have been discounted.

"It was considered by the management absolutely necessary for the retention of its business to construct a new model of its automobile, inasmuch as no substantial change had been made in models for three years. A larger car developing greater power was therefore designed to meet a growing demand from buyers and also an increasing competition. The result was a complete change in the product involving great expense and considerable delay. In order to make up for this delay and retain customers it was necessary to work the factories over-time and in some departments twenty-four hours each day. This very materially added to the cost of production for the past year, but it is not expected that such expense will be at all necessary the coming year. . . .

"During the year the company has designed and perfected a three-ton motor truck, but as none of these except the

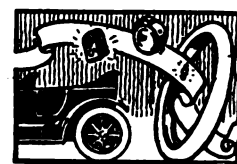
model was perfected until the last month of the fiscal year, it has not as yet added materially to the company's sales. Thus far, however, it has given the best of satisfaction.

"There has also been designed and produced a motorcycle, which, as in the case of the motor truck, was not put on the market until late in the fiscal year. It is meeting with the approval of the public and promises a material addition to the business for the coming year. . . .

"With the changes in the material of automobiles from ordinary to "high speed" steel, it became necessary to purchase and construct additional machinery. During the year the company has expended for this purpose \$87,746.35, and I believe that the company is now thoroughly well equipped for the manufacture of its product so that no considerable additions of machinery will be necessary in the near future."

The certified balance sheet, as of July 31, 1911, is as follows:

Assets.			
Real Estate, Buildings, Plant, Equipment, Machinery, Tools, Patents, Licenses and Good Will, in operation July 31, 1910...	\$5,524,131.38		
In Process of Construction and Installation July 31, 1910.....	54,114.28	\$5,578,245.66	
Deduct—Net Adjustments	\$7,740.60		
Unoperated Machinery, Tools and Equipment Sold or Scrapped.....	26,358.52	34,099.12	
		\$5,544,146.54	
Add—Expenditures on Additions and Improvements, Complete and in Operation In Process of Construction and Installation	\$237,146.73		
	36,276.16	273,422.89	\$5,817,569.43
Deferred Charges and Prepaid Expenses, including Prepaid Insurance and Advance Work on Models for future production			156,867.75
Contract to be liquidated by Deferred Instalments.....			183,640.66
Inventories of Materials, Supplies, Work in Progress and Finished Product		\$1,190,841.43	
Accounts and Notes Receivable (Less Reserves for Bad and Doubtful Accounts).....		338,329.64	
Cash and Cash Items in Bank and Office, including Fund for Payment of Unclaimed Dividends.....		92,061.22	1,621,232.29
			\$7,779,310.13
Liabilities.			
Capital Stock—			
Authorized and Issued:			
25,000 Shares Preferred.....	\$2,500,000.00		
40,000 Shares Common.....	4,000,000.00	\$6,500,000.00	
Less—Stock held in Treasury:			
2,018 Shares Preferred.....	\$201,800.00		
3,092 Shares Common.....	309,200.00	511,000.00	\$5,989,000.00
Reserves for Replacements and Accrued Renewals to Plant		\$455,006.66	
Reserves for Current Repairs.....		3,590.55	458,597.21
Bankers' Loans		\$175,000.00	
Accounts Payable, including Accrued Taxes, Royalties, Commissions and Internal Revenue Tax on Income...		141,685.58	
Pay Rolls Accrued.....		11,624.67	
Deposits on Orders.....		46,301.70	
Unclaimed Dividends		110.00	374,721.95
Contingent Liabilities			20,560.12
Surplus July 31, 1910.....	\$860,203.63		
Net Earnings for Year ending July 31, 1911.....	214,119.22	\$1,074,322.85	
Less Dividends paid on Preferred Stock for year ending July 31, 1911.....	137,892.00		936,430.85
			\$7,779,310.13



Edward A. Ross is building a garage and salesroom at 20 Water street, Auburn, N. Y. He handles Overland cars.

Charles E. Miller, the New York supply man, has opened still another branch, this time in Albany, N. Y. It is located at 137 Central avenue.

Hood Brothers Garage is the style of a new establishment which just has opened at South Greensburg, Pa. Repairing will be made a specialty.

F. L. Burdick and A. H. Elmore have formed the Franklin Motor Car Co. at Houston, Tex. As the style of the company indicates, Franklin cars will be handled.

The H. H. Dillon Co. has "opened up" in Lincoln, Neb., with headquarters at 331 South Eleventh street. Besides carrying a full line of supplies the company will handle the Hudson car.

The Abbeville Motor Car Co. has been formed at Charleston, S. C., with \$25,000 capital, and W. P. Greene as president. The company will sell Reo cars and do a general garage business.

The United States Motor Co. has opened a factory branch in Boston, Mass., to handle the distribution of Stoddard-Dayton cars. The branch will be known as the Stoddard-Dayton Sales Co.

The Hancock Motor Co., which was organized some months ago and which conducted a salesroom and garage at Calumet, Mich., has gone out of business. Lack of orders and slow collections caused the dissolution.

Frank Gotch, who has quite an international reputation as a wrestler, has gone into the automobile business, and opened salesrooms and a garage in Humboldt, Ia., in partnership with P. F. Saul. He will handle Mitchell cars.

The Peerless Motor Car Co. has brought suit for \$9,000 damages against F. H. MacFarlane and the Park City Motor Car Co., of Bridgeport, Conn. The suit hinges upon several notes of the Park City company, which were indorsed by MacFarlane.

The garage operated by George Hock on West C street, St. Louis, Mo., was closed last week under a distress warrant for alleged non-payment of rent. The constable levied on the seven automobiles in the garage and took them into custody.

The Haynes Automobile Co. has opened a factory branch in the building occupied by the Automobile College on North Capitol avenue, Indianapolis, Ind. The branch will be styled Haynes Motor Car Co. and

will be under the management of R. P. Dillon.

Harry G. Hawkins has bought the interests of his partner, R. M. Skidmore, in the Washington Motor Vehicle Co., Spokane, Wash. He has the only exclusive electric garage in the city, and acts as distributor for Baker and Hupp-Yeats electrics.

S. H. Brown, of Los Angeles, Cal., and H. L. Olive have formed a partnership under the style Harry L. Olive & Co., and opened salesrooms on First avenue, near Adams street, Spokane, Wash. The concern will sell the Overland and Kissel productions.

Charles Adams has opened a salesroom and garage on Adams avenue, Scranton, Pa., where he will do business under the style the Eureka Motor Car Co. He will handle Hudson, Metz, McFarlan and Herreshoff cars, and will carry a complete line of accessories.

The American-Marion Sales Co. and Charles E. Reiss & Co. have leased the building at the southeast corner of Broadway and 65th street, New York City. They will shortly remove to the new salesrooms from their present quarters on Broadway, near 57th street.

The Mitchell, Lewis & Staver Co., which conducted a general implement business in Spokane, Wash., has relinquished its agency for Mitchell cars, which hereafter will be handled by the factory branch recently established by the Mitchell Motor Car Co. in Seattle.

L. H. Moos, to whom the Carhartt Motor Sales Co., of New York, made an assignment two weeks ago, has been appointed receiver by court. It is now stated that the assets amount to but \$10,000 and that there is a dispute as to the ownership of several cars and some of the office furniture and fixtures.

Kenneth W. Brewer, formerly principal of the Washington school at Fond du Lac, Wis., has organized a company under the style the Brewer-Baker Motor Co., and opened salesrooms and a garage at 426 North Capitol avenue, Southport, Ind. He will act as distributor of Baker electrics for the states of Indiana and Kentucky.

John P. Snyder, of Minneapolis, Minn., has formed the J. P. Snyder Co., with temporary headquarters at 107 South Tenth street. A new garage and salesroom for his use is in course of construction on the same street, between Fourth and Fifth avenues, and will be ready for occupancy on

December 1. It is 82x157 feet, two stories high. It will house Fiat cars exclusively.

Alexander H. Robertson has been appointed receiver for the James G. B. Davy Co., dealers in automobile supplies, at 20 St. Paul street, Baltimore, Md. The bill of complaint alleges that the company owed Robertson \$205.85, and that it was unable to meet its obligations, while in its answer to the complaint the company admitted that it was embarrassed by the want of ready cash.

Under the style the White Motor Car Co. of Missouri, a new company has been formed at St. Louis, Mo., for the distribution of White cars. Oliver Shiras is president-treasurer and Walter C. White, of the White Co., of Cleveland, O., is vice-president. The company shortly will locate at 3422 Lindell avenue, but meanwhile temporary quarters have been established at 1820 Locust street.

Under the style Motor Mart the Bennett Auto Supply Co. will open one of the largest automobile sales buildings in the country in Sioux City, Ia. The structure is 150x150 feet, with a floor area of 67,500 square feet, and is built of steel and concrete, strong enough to carry four additional stories, if necessary. The building, including the plot, will cost when complete \$120,000. R. A. Bennett is the president.

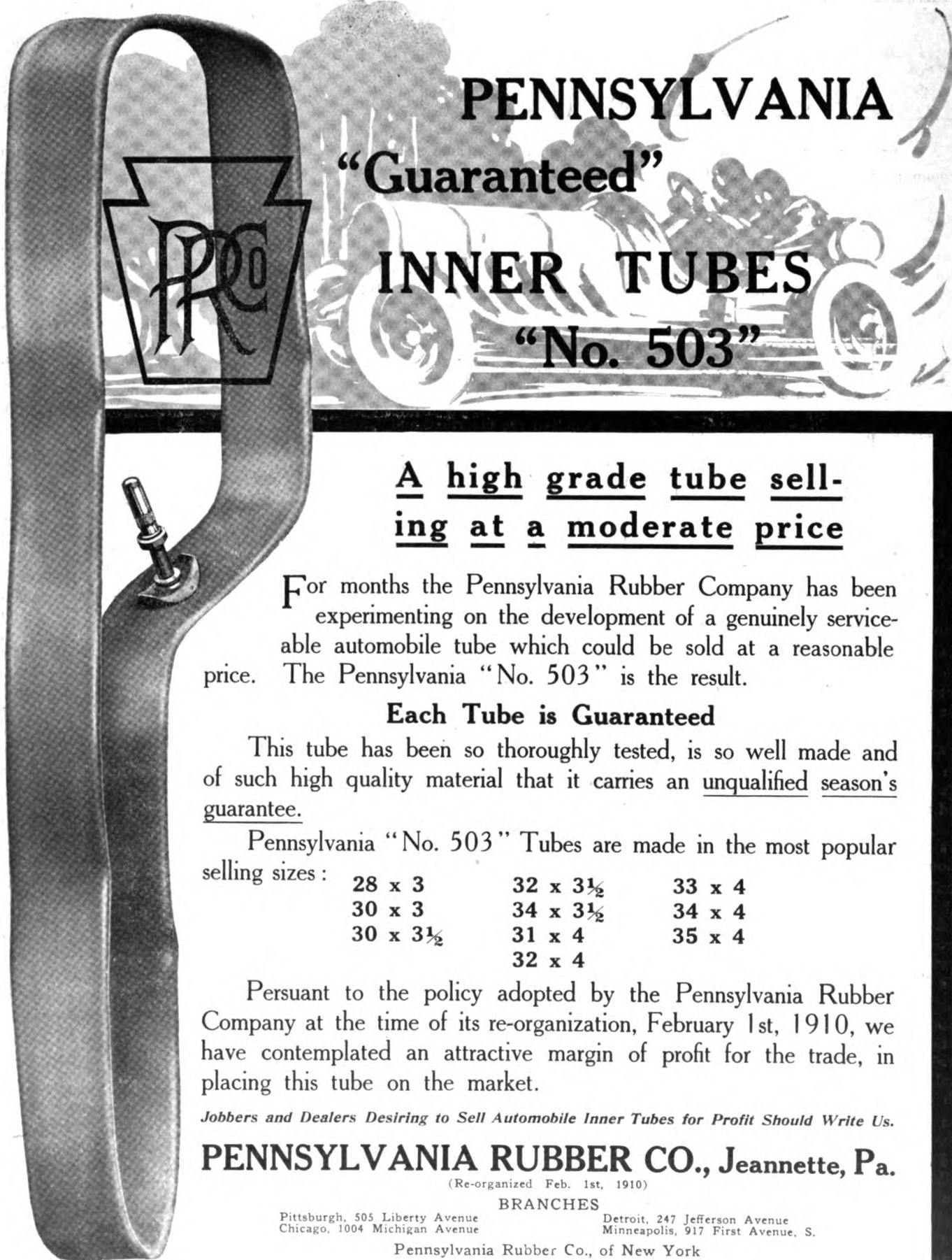
On account of new fire regulations in Spokane, Wash., the George W. Merrill Auto Co., which handles National and Thomas cars, had to remove its salesrooms and garage to 1317 Second avenue, until permanent new quarters can be secured. The old building at 910 Second avenue did not conform with regulations and the company was compelled to remove all gasoline from tanks on the cars before the latter could be put into the garage.

The disappearance last week of D. L. Clark, manager of the Atlantic City store of the Penn Auto Supply Co., of Philadelphia, Pa., brought to light several discrepancies in his accounts and the embezzlement of money from the company. A warrant charging Clark with embezzlement has been issued, and it is stated that, although he was bonded, the supply company stands to lose money, as the shortages exceed the amount of the bond.

Recent Losses by Fire.

Queenstown, Ont.—Humphries's Garage and one car damaged. Loss, \$3,000.

Sacramento, Cal.—Ritchie & Heriot, automobile supplies store on Eleventh street, damaged by fire. Loss, \$2,000.



PENNSYLVANIA

"Guaranteed"

INNER TUBES

"No. 503"

A high grade tube selling at a moderate price

For months the Pennsylvania Rubber Company has been experimenting on the development of a genuinely serviceable automobile tube which could be sold at a reasonable price. The Pennsylvania "No. 503" is the result.

Each Tube is Guaranteed

This tube has been so thoroughly tested, is so well made and of such high quality material that it carries an unqualified season's guarantee.

Pennsylvania "No. 503" Tubes are made in the most popular selling sizes:

28 x 3	32 x 3½	33 x 4
30 x 3	34 x 3½	34 x 4
30 x 3½	31 x 4	35 x 4
	32 x 4	

Persuant to the policy adopted by the Pennsylvania Rubber Company at the time of its re-organization, February 1st, 1910, we have contemplated an attractive margin of profit for the trade, in placing this tube on the market.

Jobbers and Dealers Desiring to Sell Automobile Inner Tubes for Profit Should Write Us.

PENNSYLVANIA RUBBER CO., Jeannette, Pa.

(Re-organized Feb. 1st, 1910)

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Chicago, 1004 Michigan Avenue

Detroit, 247 Jefferson Avenue
Minneapolis, 917 First Avenue, S.

Pennsylvania Rubber Co., of New York
New York City, 1700 Broadway

Pennsylvania Rubber Co., of California
San Francisco, 512-14 Mission Street
Los Angeles, 930 So. Main Street



PUBLISHED EVERY THURSDAY BY

The Motor World Publishing Co.

A. B. SWETLAND.....President

F. V. CLARK.....Secretary-Treasurer

R. G. BETTS.....Managing Editor

184 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
 Single Copies (Postage Paid) 10 Cents
 Foreign and Canadian Subscriptions . . . \$3.00
 Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, OCTOBER 5, 1911.

The Vitalizing "Southern Spirit."

There must be something in that "Southern spirit" of which the Southerners themselves are so proud. The manner in which they took hold of the Glidden contest after it twice had fallen flat for lack of interest elsewhere and when it seemed about ready for permanent burial, is not short of inspiring.

The life the Southern people have breathed into it—the manner in which they are making the forthcoming contest the greatest Glidden tour ever held—is truly remarkable. Coupled with the fashion in which they have also "saved" from oblivion both the Grand Prize race and that greatest of all American automobile classics, the Vanderbilt Cup race, the sport of automobiling owes no small debt to the "Southern spirit," and none should begrudge or withhold recognition of the fact. It's a fine spirit—the spirit of real sportsmanship; it would be well were there more

of it in the sport. It is not born or begotten of, or dependent on, trade. There's a lot of civic pride in it, but it gives forth only faint and indirect sounds of the dollar. The spirit of the sportsman is carried further in the gift of the Anderson (S. C.) trophy for competition between private owners.

However faded we of the East may have become—however wearied of dollar-dimmed automobile contests—we can afford to be glad that south of us there is a spirit charged with real enthusiasm and capable of bringing the dead to life. The "Southern spirit," as displayed on these occasions, points the way to genuine amateurism—to real sportsmanship, which has been the saddest lack of automobile competition in this country.

Measuring the Worth of a Car.

Paraphrasing the old mechanical dictum that a chain is no stronger than its weakest link, the observation is advanced that a car is not better than its driver. The merit of the observation is such that few can escape it, but the degree of its truth is worth consideration by reason of the mass of supporting data. To take an extreme example, it can be shown that an inexperienced or blundering driver can reduce a \$5,000 car to \$34 worth of junk by running it into a stone wall at high speed or sending it over the side of a bridge. In milder form, a poor driver can and does reduce the value of a car by the lesser errors in operation and in maintenance, particularly in the shifting of gears, sudden and hard application of the brakes, and in permitting the driving mechanism to accumulate dirt and rust.

Only recently a manufacturer of cars that enjoy the highest reputation and sell at topmost prices cited an example where a customer's car developed a ruined transmission as the result of being driven by a chauffeur with more muscle than brains, who yanked the change-gear lever with such Sandow strength that he broke a steel ball in the transmission bearings. The hard steel pieces of the ball did the rest, and the car was not again fit for service until it had a complete new transmission and a new chauffeur. In other cases the value and efficiency of a car is impaired by improper control of the oiling, and neglect of adjustments affecting the carburetter, the ignition, the clutch or even the fan belt tension. The tires afford the incompetent

driver an excellent chance to have trouble and blow-outs, where a good driver would have taken the necessary precautionary steps and would have had no trouble at all. Failure to have enough water in the radiator has accounted for many a car's being out of service until a new engine could be installed.

Conversely it has been made apparent from the earliest days of the automobile business that a skilled operator can perform wonders with the most decrepit sort of motor vehicle, provided it can run at all. A car may not be as good as its driver, in which case the limitation exists with the car and not with the operator. A good driver gives the car its maximum value.

In commercial vehicle work it has been found that to get the value that lies in the vehicles themselves it is necessary to have competent drivers rather than men who are merely cheap. Whether the responsibility for the operating and the keeping of the mechanism in condition be a combined or a divided duty, it must be placed with competent employees if the value of the vehicles, either intrinsically or operatively, is to be preserved. The same processes of cost keeping and ascertainment of relative values are used in relation to commercial vehicles, when applied to pleasure cars emphasize the same truth, which, to repeat, is that a car is no better than the man who is in charge of it.

Propelling a steam fire engine by means of a gasoline engine may be an improvement over hauling it by horses, but it nevertheless represents a ridiculous compromise and power duplication. While at present the New York Fire Department, which is in the transition stage from horses to motors, may take pride in a steam fire engine with a gasoline motor system of propulsion, such a cumbersome contrivance will be laughed at a few years hence. If gasoline be sufficiently reliable to be depended upon to take the apparatus to the fire, it ought to be depended upon to supply the pumping power at the fire itself. No ordinary reasoning can justify the use of a powerful gasoline motor to pull an inert steam engine outfit that in turn works while the motor that pulled it lies idle. A self-propelling fire engine should be either all steam or all gasoline in respect to the power employed, and not a lumber-some hybrid.



Detroit, Mich.—Motor Tire and Repair Co., under Michigan laws, with \$1,000; to deal in and repair automobile tires.

Boston, Mass.—Mark Motor Supply Co., under Massachusetts laws, with \$25,000 capital; to manufacture automobile supplies. Corporators—R. M. Johnson, Cambridge; M. V. O'Neill, Roxbury.

Lima, Ohio—Blevins Motor Sales Co., under Ohio laws, with \$5,000 capital; to deal in automobiles. Corporators—H. W. Blevins, T. E. Coles, George P. Lutz, V. E. Rudy, C. P. Lauchman.

Dayton, Ohio—Brackburn-Ailen Co., under Ohio laws, with \$30,000 capital; to manufacture an ignition apparatus. Corporators—W. J. Blackburn, E. E. Allen, M. A. Blackburn.

Youngstown, Ohio—Cutting Motor Sales Co., under Ohio laws, with \$5,000 capital; to deal in automobiles and accessories. Corporators—J. B. Dilchon, A. E. Baldwin, J. N. Davis, J. W. Carver, W. L. Dales.

Buffalo, N. Y.—Krotzer Co., under New York laws, with \$10,000 capital; to manufacture motors and engines. Corporators—Louis E. R. French, Israel G. Holender, Christopher M. Baldy, Charles H. Taylor.

Peoria, Ill.—Cadillac Automobile Co. of Peoria, under Illinois laws, with \$5,000 capital; to deal in automobiles. Corporators—Rollin Travis, 26 shares; Henry Nummann, 14 shares; H. H. Moody, 10 shares.

Chicago, Ill.—Logan Square Motor Car Co., under Illinois laws, with \$2,500 capital; to deal in automobiles, accessories and supplies. Corporators—Francis E. Thornton, Fred Gloor, James M. Sprinkle.

Chicago, Ill.—Hoskins Automobile Service, under Illinois laws, with \$40,000 capital; to operate and deal in automobiles and motor vehicles. Corporators—William E. Fuller, Frank J. Hogan, A. A. Pantelis.

Dallas, Texas—Overland Automobile Co., under Texas laws, with \$25,000 capital; to deal in automobiles and supplies. Corporators—W. W. Taxis, D. T. Finley, F. M. Bannell.

Peoria, Ill.—Reliable Tire Repair Co., under Illinois laws, with 2,400 capital; to deal in and repair automobiles. Corporators—John V. Leslie, George Haas, Bert A. Fritz.

Chicago, Ill.—S. & K. Tires Co., under Illinois laws, with \$4,000 capital; to manufacture tires and materials for same. Corporators—David F. Rothenthal, Edwin D. Wright, Leo F. Kosetchek.

Augusta, Me.—New England Sales & Equipment Co., under Maine laws, with \$10,000 capital; to deal in motor vehicles

and accessories. President and treasurer, E. M. Leavitt.

Louisburg, N. C.—Jackson Tri-State Motor Car Co., under North Carolina laws, with \$25,000 capital; to deal in automobiles. Corporators—R. Y. McAlden, H. D. Woolcott, Agnes Lacy.

Muncie, Ind.—Clenol Manufacturing Co., under Indiana laws, with \$10,000 capital; to manufacture polishes. Corporators—F. O. Peckinpugh, O. W. Cromer, George Lewis.

Cleveland, Ohio—The James Cormier Co., under Ohio laws, with \$2,000 capital; to deal in automobiles and accessories. Corporators—James Cormier, J. F. Nelson, R. M. Calfee, J. G. Fogg, C. M. Stelling.

Marietta, Ohio—Pioneer Motor Car Co., under Ohio laws, with \$18,000 capital; to deal in automobiles and other motor vehicles. Corporators—F. B. Bosworth, A. J. Watson, A. A. Crawford, T. McCune, H. B. Coen.

Camden, N. J.—The Auto Chemical Fire Engine Co., under New Jersey laws, with \$1,000,000 capital; to manufacture automobiles and chemical engines. Corporators—F. R. Hansel, I. C. Cow, J. A. MacPeak, all of Camden.

Minneapolis, Minn.—Oldsmobile Co. of Minnesota, under Minnesota laws, with \$10,000 capital; to manufacture and deal in automobiles and accessories. Corporators—Louis D. Manwaring, Annie Connors, F. V. Comfort.

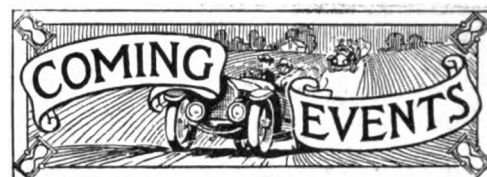
Alexandria, Va.—The B. F. Board Motor Truck Co., under Virginia laws, with \$100,000 capital; to build commercial motor vehicles. Corporators—B. F. Board, T. C. Smith, W. E. Bain, George S. Hinkins, E. K. Callahan.

Memphis, Tenn.—Ozburn Automobile Supply Co., under Tennessee laws, with \$15,000 capital; to deal in automobiles and motor vehicles. Corporators—N. F. Ozburn, W. J. Shay, W. P. Armstrong, W. A. Webster, Joseph F. Covern.

Jersey City, N. J.—Metropolitan Motor Speedway Association, under New Jersey laws, with \$1,500,000 capital; to conduct automobile races and other motor contests. Corporators—I. N. Quimby, F. H. Dobbins, E. S. Johnson, all of Jersey City.

Los Angeles, Cal.—Derby Automobile Race Co., under California laws, with \$100,000 capital; to maintain a race track and promote automobile racing. Corporators—J. E. McReynolds, E. R. Horrie, O. V. Traggard, A. F. Scherfenberg, C. I. Reynolds.

Richmond Va.—Motor Truck Co., under Virginia laws, with \$25,000 capital; to operate motor trucks and conduct a commercial transfer business. Corporators—H. A. Gillis, Charles Laurens, T. M. Garrity, all of Washington, D. C.; E. P. Cox, of Richmond.



October 7. Philadelphia, Pa.—Quaker City Motor Club's 200 miles race at Fairmount Park.

October 9-13, Denver, Colo.—Denver Motor Club's reliability tour.

October 12-22, Berlin, Germany—International automobile show in Exhibition Hall, Zoological Garden.

October 13-14, Atlanta, Ga.—Racemeet under management H. C. George.

October 14, Santa Monica, Cal.—Santa Monica road races under auspices of Santa Monica Motor Car Dealers' Association.

October 14-25, New York City to Jacksonville, Fla.—American Automobile Association's eighth annual national reliability tour for the Glidden trophy.

October 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

October 27-November 3, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

November 1, Waco, Texas—Racemeet under auspices Waco Automobile Club.

November 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

Nov. 3-11, London, England—Society of Motor Manufacturers' and Traders' annual show in Olympia Hall.

November 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

November 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

November 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

November 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

November 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

November 30, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

January 6-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden.

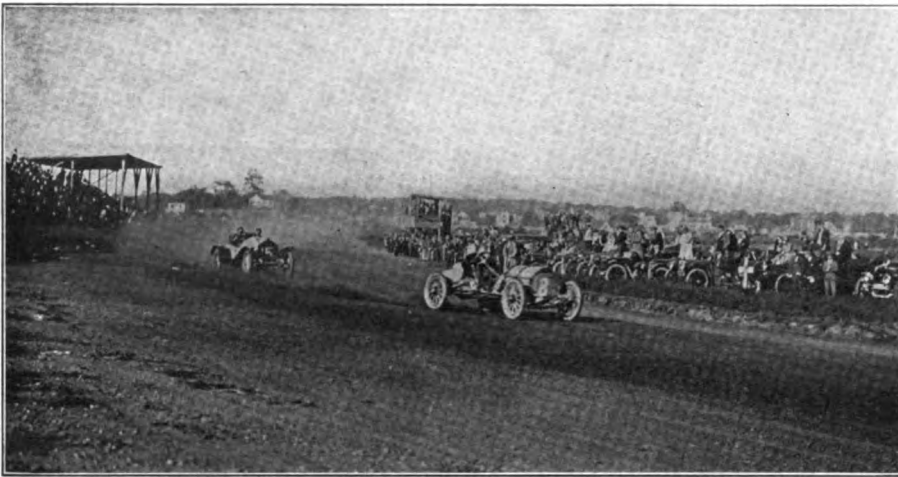
January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual show in Grand Central Palace.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

KOOPMAN AWAY OFF AT THE GUTT"

Flies the Old Track and Escapes With Slight Injuries—De Palma and "Dead-heads" Features of the Meet.

At the final racemeet of the Metropolitan district, held on the old Guttenberg track, which is in the New Jersey township of that name, it was fitting that Ralph De Palma should be the star, for he had done things there before, including the setting of a track record or two, and he therefore had a reputation to sustain. But the next time he goes to Guttenberg he will have to work a good deal harder than he did on



DE PALMA (MERCER) LEADING KOOPMAN (NATIONAL) IN FIVE MILE FREE-FOR-ALL

Saturday last, 30th ult., for he lowered two of his own records—one at one mile and the other at five miles—with the Simplex he reserves for such doings, and also won a five mile event with his recently acquired Mercer.

It was a fairly big crowd that witnessed the racing, though only a very small part of it paid for the privilege. By far the biggest part of the crowd was composed of "fence birds," and they remained perched on the fence surrounding the mile oval till Henry Koopman, driving a National in a five miles free-for-all, lost control of the car on the first turn and it skidded around and rolled over two or three times, throwing out both driver and mechanic. Simultaneously the hundreds of spectators on the fence dropped down into the enclosure, and in an instant the wrecked National was the center of a bigger crowd than ever was in the grandstand. De Palma, who was leading with his Mercer at the time, was flagged and the race was stopped, Gray (Schacht), the only other competitor, being far behind. Neither Koopman nor his mechanic was seriously hurt. Koopman's spill was the only excitement of the raw and rather dull afternoon.

After the officials had shooed the crowd off the track into the paddock, the judges

stand and the 50-cent seats in the grandstand, De Palma went out with his Simplex and drove five laps in 4:51½, which is no less than 29¾ seconds faster than the best previous record of 5:20¾, also held by himself. His first trial against his own record of 59¾ seconds for one lap of the track netted him 58½ seconds. With his Mercer he had a particularly easy time in winning a five miles race for cars of less than 301 inches displacement. Jack Towers (E-M-F) was second and J. M. Gray (Schacht) was third. De Palma's time was 5:45¾. William Regan at the wheel of a Paige-Detroit walked away from Charles Tate and Emery Smith, both in Regals, in the curtain raiser, a five miles brush for cars with less than 231 inches displacement. They finished in

that order. Regan's time was 6:29¾. Ira Vail, Regan and Smith, all in Regals, started in a five miles race for private owners, but Vail was the only one to finish. His time was 6:40¾. The summary:

Five miles, class E. under 231 inches displacement—Won by William Regan (Paige-Detroit); second, Charles Tate (Regal); third, Emery Smith (Regal). Time, 6:29¾.

Five miles, class C, under 301 inches displacement—Won by Ralph De Palma (Mercer); second, Jack Towers (E-M-F); third, J. M. Gray (Schacht). Time, 5:45¾.

Rain Causes Postponement at Omaha.

Three days of continuous rain disarranged the plans of the Omaha Motor Club in connection with the Ak-Sar-Ben celebration in the Nebraska city, 1st to 7th inst. A four days' racemeet was announced to begin Saturday, 30th ulto. and continue until Tuesday, 3rd inst. The storms of Friday, Saturday and Sunday, however, put the speedway in such bad condition that it was not deemed safe for automobile racing, and they were postponed until the 4th to 8th inst. inclusive. There will not be five days of racing, however, as the Ak-Sar-Ben parade takes place on Thursday, 5th inst., and the program for that day will be carried out on Sunday, 8th inst.

NINETEEN FOR FAIRMOUNT PARK

Line-up for Philadelphia's Big Race Promises a Quality Contest—Zengle Again to Defend His Laurels.

With 19 entries in hand, and the promise of one or two others, though the entry list officially was closed on Monday, the Fairmount Park race, which will be run on Saturday next, 7th inst., in Philadelphia, will not be as big an affair as it was last year, when 32 cars were sent away. It does not lack quality, however, and that it will be faster, is the opinion of several of the drivers who have been practicing on the course. Mulford, who so nearly carried away the laurels last year with his Lozier, says that Zengle's average of 58 miles an hour will be bettered by at least four miles an hour, and the others are equally optimistic; nearly all of them are well-known figures, though some have changed their mounts, and others are more or less new.

Zengle, last year's winner in the big car class, will be there, of course, though not with his old familiar Chadwick. This year he will drive a National around the eight miles circuit in Philadelphia's "people's playground," and will have as his team mate "Don" Herr. Mulford will drive a Lozier, and a second Lozier will be handled by Harry Grant. Grant's car is the same one that Van Goerder drove at Indianapolis on Decoration Day, and though it is privately owned and entered, Grant will be one of the Lozier team. The Bergdoll brothers will be on hand, three strong. Charles and Grover will drive Bergdoll cars, and this is the first time that either drivers or cars have appeared in a long-distance road race. Edwin R. Bergdoll will have the same Benz he drove last year. The self styled Lee "Oldfield" is listed as the driver of one of the Fiats entered, though whether he will drive it is an open question. It is probable that his place will be taken by Willie Haupt. The other Fiat will be driven by J. Fred. Betz 3rd.

Practically all of the other combinations are familiar, the complete list being as follows:

Division 3C, 231-300 inches displacement.	
Driver.	Car.
Charles Bergdoll.	Bergdoll
Grover Bergdoll.	Bergdoll
Joe Jagersberger.	Case
Charles Basle.	Cole
Hughie Hughes.	Mercer
Harvey Ringler.	Mercer
H. S. Matthews.	Ohio
George Parker.	Ohio
Division 4C, 301-450 inches displacement.	
Donald Herr.	National
Harry Koopman.	National
Gil. Anderson.	Stutz
Division 5C, 451-600 inches displacement.	
Harry Grant.	Lozier

Ralph MulfordLozier
 Willie WallaceMercedes
 Spencer WishartMercedes
 Leonard ZengleNational
 Division 6C, 601-750 inches displacement.
 Edwin R. Bergdoll.....Benz
 J. Fred. Betz 3rd.....Fiat
 Lee "Oldfield" or Willie Haupt.....Fiat

Among these drivers, however, there is at least one who will not start—Harvey Ringler and his Mercer. They figured in a spill in practice on Wednesday, which cost Ringler a broken arm and his mechanic a fractured leg.

For the fourth time in as many years the municipal authorities of the city of Philadelphia will co-operate with the Quaker City Motor Club in the management of the event. The course will be the same as it has been in years gone by—200 miles, the most of it in Fairmount Park and a small part of it on city streets. The race is a class C, non-stock event and will be divided into four classes, according to piston displacement, as follows: 231-300, 301-450, 451-600 and 601-750 cubic inches piston displacement. To the driver making the best time for the 200 miles, regardless of the class he is competing in, there will be given a grand prize of \$2,500. The winners of the four classes will be given \$1,000 each, so that it is possible for one man to win at least \$3,500, to say nothing of the various "dots" which have been added by accessory manufacturers and which should bring the amount of the grand prize well above that figure. The entry fee for a single car is \$500.

Coroner's Verdict on Syracuse Tragedy.

Everybody and nobody is guilty of causing the disaster at Syracuse on September 16 last, in which 12 persons were killed and several injured when Lee "Oldfield's" Knox crashed through the fence. In his verdict, rendered on Monday last, Coroner George R. Kinne distributes the blame. Everybody connected with the racemeet, including the New York State Fair Commission, and the crowd around the fences is blamed in a superficial way, but, says the Coroner: "I do not find that the driver (Oldfield), his manager or any of the people mentioned were guilty of that careless and reckless disregard of the lives of others which the courts hold to be that degree of culpable negligence which would justify a charge of manslaughter."

New Club for Marysville, Kan.

Motorists of Marysville, Kan., have formed the Marysville Automobile Club and elected the following officers: President, Charles F. Travelute; vice-president, Joseph Ellenbecker; secretary-treasurer, L. H. Whan; good roads committee, E. O. Webber, Harry M. Thompson, Dr. W. R. Breeding, C. F. Travelute, L. H. Whan; executive committee, Charles J. D. Koester, William Kraemer, Charles K. Kern, L. H. Whan, C. F. Travelute.

FINE JUDGEMENTS FROM GERMANY

Motorist Mulcted for Impairing "Nerves" of Horse—Another Escapes Because Beer Affected Cyclist's Hearing.

While it long has been a well-recognized and well-established fact that the minds of judges and those of ordinary mortals rarely "run in the same channels," as great minds are said to do, it appears as if the learned judges of the German Empire manage to go further and to read things into the letter of the law that the average man could not discover, were he to labor over the task for the greater part of his life. Particularly since the great rise of the automobile industry and the wonderful increase of automobile touring have judicial decisions become "past understanding." Nearly every month brings forth another crop of freak sentences, so that it is almost impossible to keep track of them.

Undoubtedly the prize for the most freakish decision should go to the Oberlandesgericht Stuttgart, which recently decided that an automobile owner is responsible for the "nerves" of a horse! It seems that a certain high-spirited trotter was "scared to death" by a passing automobile and became so nervous that it could not trot satisfactorily thereafter. A suit for "damages" having been instituted the court promptly sentenced the motorist to pay the amount asked, invoking in support of its opinion the old Roman law, according to which a man is responsible for damages sustained by another person, although such damages may consist in mere "nervousness" which would tend to prevent the victim from following his vocation." The court applied the same principle to the horse, and the motorist had to pay, because the court in question is the highest court in Wuerttemberg and its findings in civil actions are not subject to revision by the Reichsgericht.

Another decision, however, while freakish enough, was in favor of the motorist. In this case a bicyclist had taken a few drinks and was in a state of mind that may properly be described as "slightly intoxicated," when he decided to take a ride on his wheel. An automobile knocked him down and injured him severely. In his suit for damages the cyclist admitted having taken a couple of drinks, and alcohol experts testified that the quantity of alcohol admittedly imbibed by him was sufficient to impede seriously his power of hearing, at least temporarily. The motorist was able to prove that he had sounded his horn and was promptly acquitted. But the best part of the trial came when the court severely reprimanded the cyclist for daring to ride on the public street and endangering traffic by his carelessness in reducing the powers of his auditory nerve.

Another judicial decision, rendered by the Reichsgericht and establishing a valid precedent for all similar suits within the confines of the German Empire, is more in line with decisions rendered in this country. It declares it the duty of every person visiting an automobile race to be careful in the choice of his position. If such a spectator chooses to stand at a place known to be dangerous, the court held that he cannot recover damages if he should be injured. In the eyes of the law he is an accessory before the fact.

More Half-Mile Stunts in South Jersey.

Harvey Ringler did not quite drive rings around the local pilots against whom he drove on Saturday, 30th ult., at Bridgeton, N. J. The so-called South Jersey Motor Club promoted the meet and it was held on the half-mile dirt track on which the Bridgeton Driving Association exercises its horses. At the wheel of a Mercer, Ringler accounted for three of the seven events, but W. D. Morton in a Kline and J. W. Minker also twice shared the limelight. Joseph Di Napoli, who was put off the Point Breeze track recently because he wanted to race with an aged tire and who subsequently did go out without changing it and wrecked his car, started in a match race with a Knox, but Sam Bloxom, with a Jackson, easily beat him. The summary:

Five miles, free-for-all handicap—Won by John W. Minker, Kline (40 seconds); second, Thomas Luinney, Hudson (20:10 seconds). Time, 7:30.

Five miles, free-for-all handicap—Won by John W. Minker, Kline (6:15 seconds); second, Joseph Di Napoli, Knox (scratch). Time, 6:37:19.

Five miles match, Harvey Ringler (Mercer) vs. W. D. Morton (Kline)—Won by Ringler. Time, 6:34:60.

Five miles match, Sam Bloxom (Jackson) vs. Joseph Di Napoli (Knox)—Won by Bloxom. Time, 7:18:20.

Five miles match, Harvey Ringler (Mercer) vs. W. D. Morton (Kline)—Won by Ringler. Time, 6:35:10.

One mile time trials, flying start—Won by W. D. Morton (Kline), time, 1:15; second, Joseph Di Napoli (Knox), time, 1:19; third, J. W. Minker (Kline), time, 1:20.

Five miles, free-for-all handicap—Won by Harvey Ringler, Mercer (scratch); second, A. U. (Vincent) Padula, Abbott-Detroit (20 seconds). Time, 6:50:60.

Iowa Adopts Black and White Tags.

Iowa has decided to use black and white license plates for the year 1912. The plates have been greatly improved, following many criticisms from owners of cars. The square, sharp corners have been discontinued, the new plates being furnished with smooth, round corners. The letters will be in white enamel, raised on black background. They will cost the State 44 cents each set of two, or 8 cents less than the present plates.

SOUTH GIVES GLIDDEN BIG BOOST

Assures Its Being "Greatest Ever" in Point of Numbers—83 Entries and More Coming—The Itinerary.

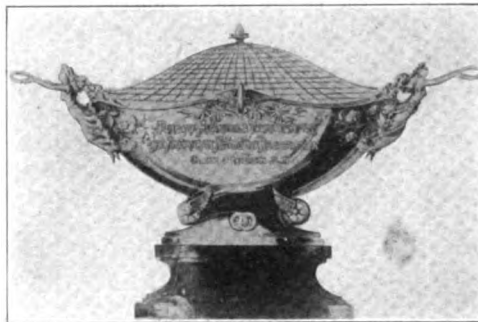
In point of size, at least, the 1911 Glidden tour, which is scheduled to be started in New York City on Saturday morning, 14th inst., will be the greatest that ever started in the American Automobile Association's historic event, or for that matter in any other reliability tour, no less than 83 entries have been made, and though the list was closed on the 1st inst., it is not unlikely that several more will be added. Seventy-seven of the entries in hand are those of contestants, and six, embracing two press cars, a Reo truck for baggage and three diminutive Kelsey Motorettes, are non-contestants.

That chief interest in the tour centers in the South is evidenced by the fact that very close to 80 per cent. of the entrants hail from Southern States. Another substantial evidence of the interest occasioned in the South is shown in the donation by Chamber of Commerce and the citizens of Anderson, S. C., of a handsome silver trophy to be awarded the individual owner whose car covers the 1,454 miles journey with the least number of points penalty against it. The cup measures some 39 inches by 15 inches and is second only to the Glidden trophy itself in point of intrinsic worth.

As previously stated in the Motor World the tour will be a grade IV team contest, which is to say that penalties will be imposed only for lateness at control, and the Glidden trophy will be awarded to the team of three cars making the best aggregate score. Those entrants who team up and compete for the Glidden trophy will also compete for the Anderson cup. To date only six teams have been nominated, though the nomination of others is pending, and it is likely that at least a dozen will be formed. The six which have been formed are as follows: Tarrytown, N. Y., team, United States Motor Co., three Maxwells; Detroit team, Studebaker Corporation, three Flanders cars; Waltham, Mass., team, Metz Co., three Metz runabouts; Nashville, Tenn., team, Marathon Motor Works, three Marathon cars; Atlanta team No. 1, Mayor C. S. Winn (Flanders), F-M-F Atlanta Co. (Flanders) and Decatur Board of Trade (Flanders); Atlanta Journal team, Major J. S. Cohen (White gasoline), Jas. R. Gray (Thomas) and Inman Gray (American). The complete entry list is as follows:

C. S. Nolan, Jacksonville.....Cadillac
U. S. Motor Co., New York.....Maxwell
Mayor C. S. Winn, Atlanta.....Flanders
Major J. S. Cohen, Atlanta...White (gas.)
J. H. Marsteller, Roanoke, Va...Chalmers

U. S. Motor Co., New York.....Maxwell
U. S. Motor Co., New York.....Maxwell
E. P. Ansley, Atlanta.....Pierce-Arrow
C. H. Johnson, Atlanta.....Stevens-Duryea
H. M. Grant, Atlanta.....Marmon
H. B. Race, Jacksonville.....Cole
W. J. Hillman, Live Oak, Fla....Cadillac
A. H. Whiting, New York.....Cunningham
Ray M. Owen, New York...Reo (official)
Ray M. Owen, New York...Reo (official)
W. E. Aycock, Moultrie, Ga.....Knox
J. R. Sandlin, Jasper, Fla.....Cadillac
R. P. Hooper, Philadelphia.....Garford
R. D. Drysdale, Jacksonville.....Cadillac
Gov. Hoke Smith, Georgia.....Maxwell
Studebaker Corporation, Detroit..Flanders
Studebaker Corporation, Detroit..Flanders
Studebaker Corporation, Detroit..Flanders
C. J. Hood, Commerce, Ga.....Columbia
Frank Hardart, Philadelphia.....Winton
H. M. Atkinson, Atlanta.....Packard
Wm. D. Alexander, Atlanta...White (gas.)
D. H. McMillan, Jacksonville.....Cadillac
Inman Gray, Atlanta.....American
James R. Gray, Atlanta.....Thomas
Henry Tift, Tifton, Ga.....Rambler
Streator M. C. Co., Albany.....Halladay
C. E. Fryer, Albany.....Halladay
D. P. De Berry, Albany.....Halladay



THE ANDERSON (S. C.) TROPHY

Metz Co., Waltham, Mass.....Metz
Metz Co., Waltham, Mass.....Metz
Metz Co., Waltham, Mass.....Metz
C. Wheatley, Americus, Ga.....Stevens-Duryea
Anderson Ad Men's Club and Chamber of Commerce, Anderson..Mitchell
Atlanta Ad Men's Club, Atlanta...Corbin
R. S. Hall, Ocala, Fla.....Cadillac
J. Epps Brown, Atlanta.....Thomas
Charles Crook, Atlanta.....Packard
H. P. McNeil, Jacksonville.....Cadillac
St. E. Massengale, Atlanta.....Garford
Griffith Imp. Co., Athens, Ga.....Schacht
L. C. Brown, Athens, Ga.....Mitchell
P. D. Sandlin, Jasper, Fla.....Cadillac
Bishop & Varner, Athens, Ga.....Maxwell
Jacksonv. Met., Jacksonville...White (gas.)
L. C. Denmark, Jacksonville.....Cadillac
R. S. King, Arcadia, Fla.....Cadillac
Carolina Portland C. Co., Atlanta...Ford
F. M. Willingham, Atlanta.....Ford
J. O. Teasley, Alpharetta, Ga.....Ford
C. A. McCardle, Indianapolis.....E-M-F
Athens M. C. Co., Athens, Ga.....Columbia
I. H. Brennan, Newark, N. J.....Packard
I. S. Hingler, Ashburn, Ga.....Cadillac
Martin & Keese, Habira, Ga.....Cadillac
Winston-Salem Board of Trade.
Winston-Salem.....Mitchell
City of Cordelle, Georgia.....Oldsmobile
Cham of Com., Cordelle, Ga.....Oldsmobile
Marathon M. Wks., Nashville...Marathon
Marathon M. Wks., Nashville...Marathon
Marathon M. Wks., Nashville...Marathon
Decatur B. of T., Decatur, Ga...Flanders
E. Rivers, Atlanta.....Pierce-Arrow
Dr. W. N. Stinson, Jacksonville..Oldsmobile
F-M-F Atlanta Co., Atlanta.....Flanders
Brooks Morgan, Atlanta.....Stevens-Duryea
Asa G. Candier, Jr., Atlanta.....Lozier

I. M. Powell, Cordelle, Ga.....Oldsmobile
Roberts M. Co., Jacksonville.....Flanders
Krit Motor Car Co., Detroit.....Krit
L. Hopkins, Greensboro, N. C....Overland
Greensboro C. of C., Greensboro...Case
H. L. Raymond, New York.....Oldsmobile

Non-Contestants.

Chalmers M. Co., Detroit.....Chalmers Six
Velie M. V. Co., Atlanta.....Velie (press)
C. W. Kelsey M. Co., Hartford..Motorette
C. W. Kelsey M. Co., Hartford..Motorette
C. W. Kelsey M. Co., Hartford..Motorette
R. M. Owen Co., New York.....Reo truck

Elaborate arrangements have been made for the entertainment of the Gliddenites all along the line of the tour and the easy stages and good roads insure the contest savoring more of the sociability run than ever did Glidden tour before. The itinerary is as follows:

Oct.	Start.	Night	Daily	Noon Stop.
14	New York.....	Stop.	Mileage.	Trenton
15	Philadelphia.....	Philadelphia	95.1	Lancaster
16	Gettysburg.....	Gettysburg	120.1	Winchester
17	Staunton.....	Staunton	182.3	Nat'l Bridge
18	Roanoke.....	Roanoke	90.8	Martinsville
19	Winston-Salem.....	Winston-Salem	124.3	Salisbury
20	Charlotte.....	Charlotte	135.6	Anderson
21	Anderson.....	Spartansburg	160.6	Commerce
22	Atlanta.....	Atlanta	144.2	
23	Atlanta.....	(Sunday stop-over)...		
24	Atlanta.....	(Monday stop-over)...		Macon
25	Cordelle.....	Cordelle	167.5	Valdosta
25	Live Oak.....	Live Oak	149.1	None
		Jacksonville	85.0	

Total Mileage.....1,454.6

Lazansky Moves for Uniform Laws.

To smooth over the difficulties and end the conflict of the warring States of the Union, more particularly the Eastern States, in regard to their automobile laws, is the heroic task Edward Lazansky, Secretary of State of New York, has set himself. As a first step toward this goal the secretary has invited the officials having charge of automobile matters in the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Pennsylvania, Maryland, Virginia, Ohio and Illinois, requesting their presence at a conference to be held in his office in the State capitol in Albany on October 8.

Secretary Lazansky has no intention of forcing the New York laws upon other States, nor does he claim that the provisions of the Empire State are the best that could be made, but he does think that the present chaotic state in the automobile laws of neighboring States has become untenable and that uniform regulations are absolutely necessary.

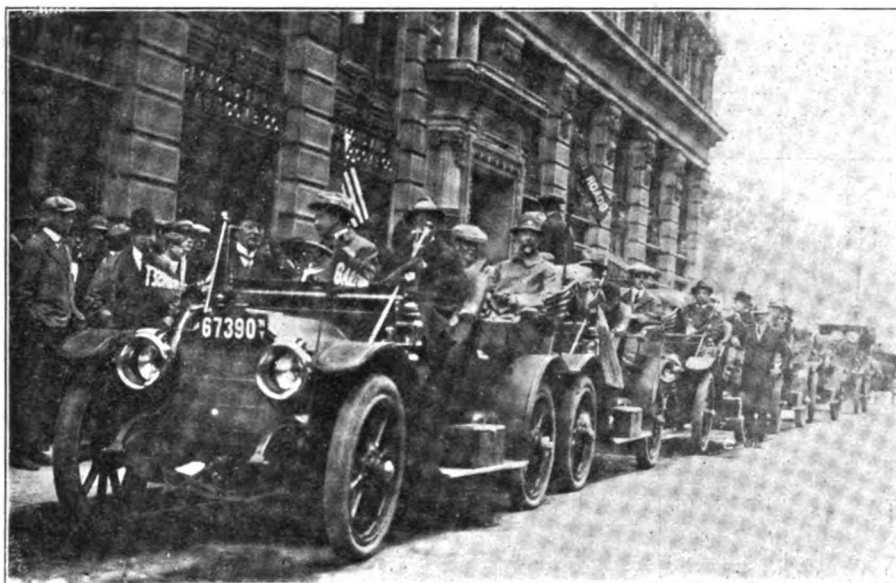
Where Even Baby Carriages Are Tagged.

While it is fairly well known that every adult German is supposed to carry with him day and night his so-called "identification papers," women and babies hitherto have been free from the galling requirement. Not so at present, however, for at least one of the cities of the Fatherland recently passed a law requiring all baby carriages to be properly registered and tagged with a license plate. The law is expected to help grieving parents and distracted policemen to locate or identify the baby after the nurse has taken a walk with her "soldier boy."

FIRST TICKETED TOUR STARTS WEST

Five Garford Carloads of Passengers Make Up Tourists' Agency's Ocean to Ocean Journey—Their Route.

When some three months ago the Raymond & Whitcomb Co., as related in the Motor World, announced its intention of sending ten Garford touring cars filled with passengers on a transcontinental trip from New York City to Los Angeles, Cal., many people viewed it as a mere publicity scheme on the part of that well-known tourists' agency. That the company meant what it said, however, was made evident last Mon-



START OF FIRST TOURIST AGENCY OCEAN TO OCEAN TRIP

day, October 2d, when a party of 16 people took their seats in five Garford cars and started on the long 4,200 mile run, according to the announced schedule. A. L. Garford, president of the company which made the cars, was at the wheel of the first car and piloted the "fleet" part of the way to Poughkeepsie, N. Y. With him were Mr. and Mrs. A. L. Westgard, Mr. Westgard being the official pilot of the party.

While this is not the first transcontinental touring party of more than two cars, the present enterprise is the first one in which anyone could step up and pay \$845 for a reserved seat in a touring car for such a journey; the price includes all hotel and incidental expenses. The plan of sending the touring cars across the continent suggested itself to the Raymond & Whitcomb Co. after the various New England tours conducted by the same agency disclosed a public liking for automobile touring of the kind. The company, as stated in the Motor World at that time, planned to inaugurate a similar service in California during the winter months, and, instead of shipping the cars by freight, it offered to take passengers across the continent in

the automobiles on a regular schedule, at a comparatively low rate of transportation.

The accompanying illustration shows the fleet of cars ready for the long trip of 4,200 miles from New York City to Los Angeles, Cal., which latter city the tourists are scheduled to reach on November 22. The route will go from New York to Chicago via the conventional paths, then across the State of Illinois to Davenport, Ia. Thence it leads to Omaha along the famous river-to-river road. Kansas City is the next big city on the route and forms the beginning of the famous Santa Fe trail, which is followed through Colorado, New Mexico to Santa Fe.

At this point the route will leave the railroad, which it has been following thus

far, and strike into the sparsely settled territory of Arizona, touching Phoenix, the capital. From Phoenix the trail will lead to the Salton Sea and the Jacinto Mountains to Riverside and Los Angeles.

The names of the persons who have engaged accommodations and actually started, besides A. L. Westgard and his wife, are: Mr. and Mrs. George F. Foote, Mr. and Mrs. John Legg, Howard Legg, W. J. Studwell, Richard L. Fox, W. F. Harris, H. D. Ashton, Leonard Ormerod, Edward Grabow, J. T. Springer, Horace Horne, M. Ryan, George H. Reye and P. B. Bier-shenk.

A carload of New Englanders will join the party at Albany, and other passengers will be picked up on the route.

Motorists of Norfolk, Neb., have organized the Madison County Automobile Association. Each district of Madison county has been requested to nominate a representative on the board of directors. The officers, all of whom reside in Norfolk, are: President, H. A. Pasewalk; vice-president, George B. Christoph; secretary-treasurer, C. B. Salter.

PAYS A FINE FOR SAVING A LIFE

Germany Stirred by Case of Motoring Physician Hurrying to Scene of Accident—Peculiarities of the Law.

While in America physicians have been arrested for exceeding the speed limit when driving to patients on a "hurry call," such cases have been rare in Germany, because the automobile law allows a higher speed to physicians responding to bona-fide sick calls. The law there, however, does not say anything about their being permitted to use promenades or cycle paths in emergency cases. Furthermore, paragraph 54 of the criminal code of the German Empire permits a man to disregard local ordinances or traffic regulations only in case his own life or that of a member of his family is in jeopardy. The peculiar wording of this paragraph was responsible for the arrest and fine of a physician, who by temporary disregard of a town ordinance succeeded in saving a human life.

The case, which has aroused widespread interest and called forth vigorous protests from the general public as well as from the medical profession, occurred on August 10th last, in a small city in the province of Brandenburg, within a day's walk of the capital of the Empire. A doctor was called by telephone to a bathing pavilion, where a swimmer had become unconscious. Half way between the doctor's residence and the bathing pavilion the road was in a very bad condition and accordingly he drove on a near by cycle path. He saved the swimmer's life but the argus-eyed police promptly fined him 25 marks for trespassing on the cycle path.

When the doctor appealed to the higher court against the police decision, the learned judge presiding declared that while the German law permits an individual to ignore ordinances, if such disregard would result in the saving of a life—or a strict observance of the regulation would be followed by death or injury to the individual or members of his family—as it did not make mention of stranger's lives, any man breaking a police regulation in order to save a stranger's life would have to take his chances with the police, insofar as fines were concerned.

In connection with the ruling of this judge, the German press calls attention to a truly "classical" example of red tape and bureaucracy which occurred last year in Silesia. There a miner, passing along the highway which runs parallel and close to the railroad tracks, noticed a stranger lying across the rails, and, at the risk of his own life, rushed upon the raised roadbed and snatched the would-be suicide from in front of an onrushing train. The next day he was fined 10 marks for "trespassing on the property of the railroad."

CITY PARADES FIRE APPARATUS

**First Public Display Pointing Way to
Motorization of Entire Department—
Motors and Horses Compared.**

New York witnessed its first parade of automobile fire apparatus on Monday last, 2nd inst. While the turnout was interesting to many New Yorkers, as affording the first close examination of the modern fire apparatus, it was not so impressive as will be a similar parade twelve months hence. The parade was incident to the opening of the annual Budget Exhibit of the City of New York, to which it was designed to at-

tract public attention; as admission is free it follows that it does not lack spectators.

the Fire Department. The touring cars and the runabouts all are finished in "fire alarm red."

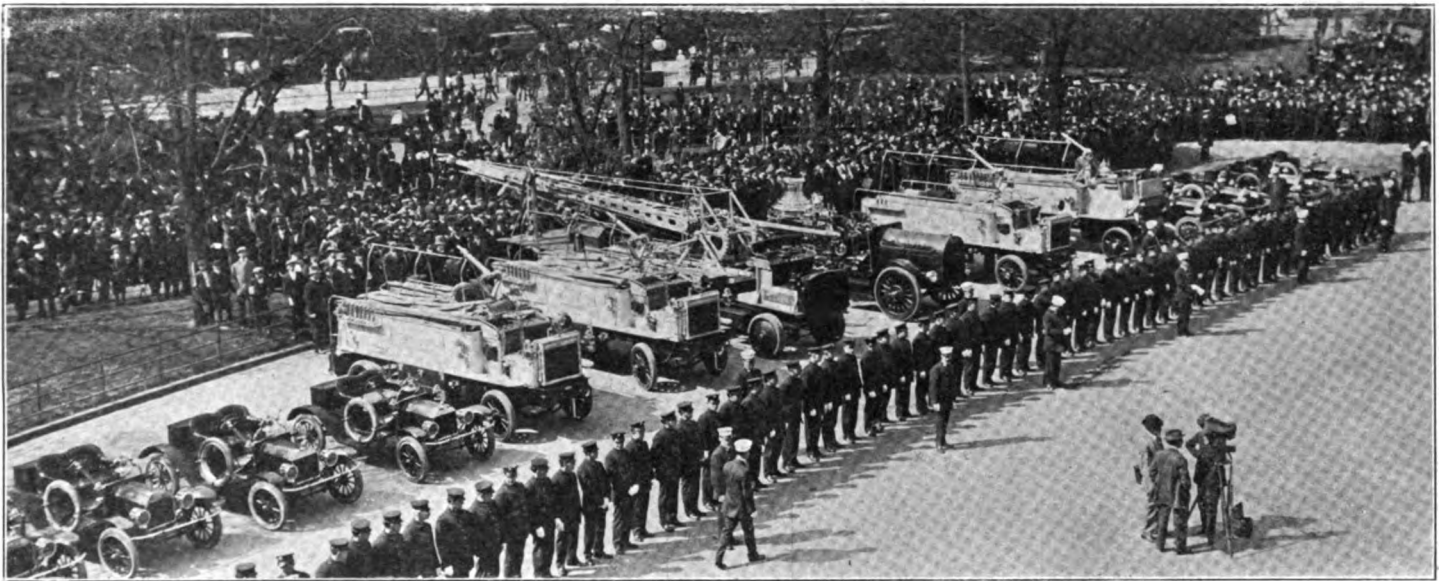
At present there are 29 pieces of automobile apparatus in the New York Fire Department. One year hence there will be more than 100, orders for which already have been placed, as it is the intention to wholly "motorize" the big city fire department. What the future holds is indicated not only by these figures, but by the fact that not only is all of the present horse-drawn apparatus to be displaced by motor propelled vehicles, but that 42 new companies are to be organized and similarly equipped.

The parade called on the Mayor at the City Hall, and for two hours the vehicles

The Waterous engine shown in the Budget exhibit is probably the largest of its kind in existence. It has a power plant of six cylinders $7\frac{1}{4} \times 8$ and develops about 126 horsepower. Its pumping plant also is driven by the gasoline motor and includes four pumps $4\frac{3}{4} \times 8$ inches.

Wants \$10,000 for Injury to Eyes.

Although Fayette Fink, of Omaha, Neb., does not exactly know what happened to him just before he took an aviation trip to the ceiling of his garage, coming down with considerable vehemence upon the wooden floor, he followed the general trend of the times and blamed his new automobile for his experience—which, of course, means that he sued the company which sold



NEW YORK'S MOTOR PROPELLED FIRE APPARATUS PARKED IN FRONT OF THE CITY HALL

tract public attention; as admission is free it follows that it does not lack spectators.

The Budget Exhibit, housed in a big building on Broadway in the business district, is designed to give the taxpayers and rent payers an idea of how their money is spent, and also presents object lessons designed to show why the budget grows larger and larger each year and why the city fathers, therefore, require more money.

It is a wonderfully interesting display, which this year includes everything from samples of stationery and penwipers used in the various city departments to fire horses and police dogs and the big six-cylinder 126 horsepower Waterous gasoline pumping engine. This gigantic engine has not yet been added to the New York Fire Department, as it is yet only on trial. It did not take part in the parade, which was made up of a Webb automobile fire engine, a Webb high pressure hose wagon, a Knox wagon of the same sort, a water tower drawn by a Couple-Gear tractor, two Lozier touring cars, which are used by the fire commissioner and the fire chief, and eight Ford runabouts, which are employed by the deputy chiefs and battalion chiefs of

were parked in City Hall Park, forming an unusual scene for the thousands who are so quickly attracted to the many scenes which occur on that busy spot in New York.

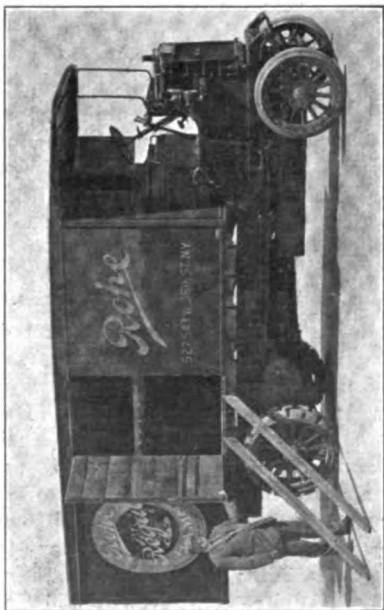
The pathetic side of the parade was supplied by two of the oldest fire horses in service, both of which were garlanded with flowers, suggesting what is the fact, that the funeral of the horse, so far as the fire department is concerned, is not far removed. The cause which is hastening this funeral is emphasized by a placard displayed near a big Webb high pressure wagon, which, with the Waterous engine, is included in the Budget Exhibit. The placard makes plain the record of Engine Company No. 58, which is the busiest in New York City, and shows the comparative cost of horse equipment and automobile equipment during the period from March 20th to September 30th, inclusive. The comparison comprises the following figures:

Maintenance of engine and hose wagon with five horses.....	\$471.90
Maintenance of automobile engine and hose wagon	73.35
Saving in 6 months and 10 days....	\$398.55

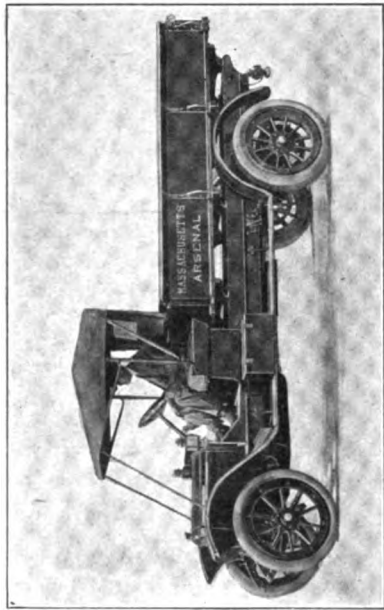
him the car for damages. In his complaint Fink alleges that the Peerless Auto Co., of the Nebraska city, represented in the person of one Guy Smith, sold him an automobile said to be a brand new one, but that on his subsequent examination the machine proved to have been run before. He also states that on this occasion he came into contact with gasoline when he didn't expect it, and hit the ceiling with a crash. He claims his eyesight has been impaired \$10,000 worth and he wants the automobile company to make good the alleged damage.

To Build Track in Sioux Falls.

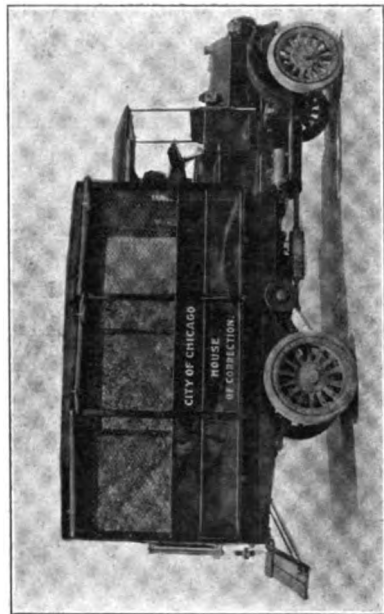
Motorists of Sioux Falls have formed the Sioux Falls Automobile Racing Association for the purpose of promoting race-meets in that prosperous South Dakota city. A mile track will be built exclusively for automobiles. Incorporation papers have already been filed and the following officers elected: President, H. F. Brownell; vice-president, H. C. Fenn; secretary-treasurer, A. J. Keith; directors, D. L. McKinney, J. L. White, C. R. Newby and George W. Abbott.



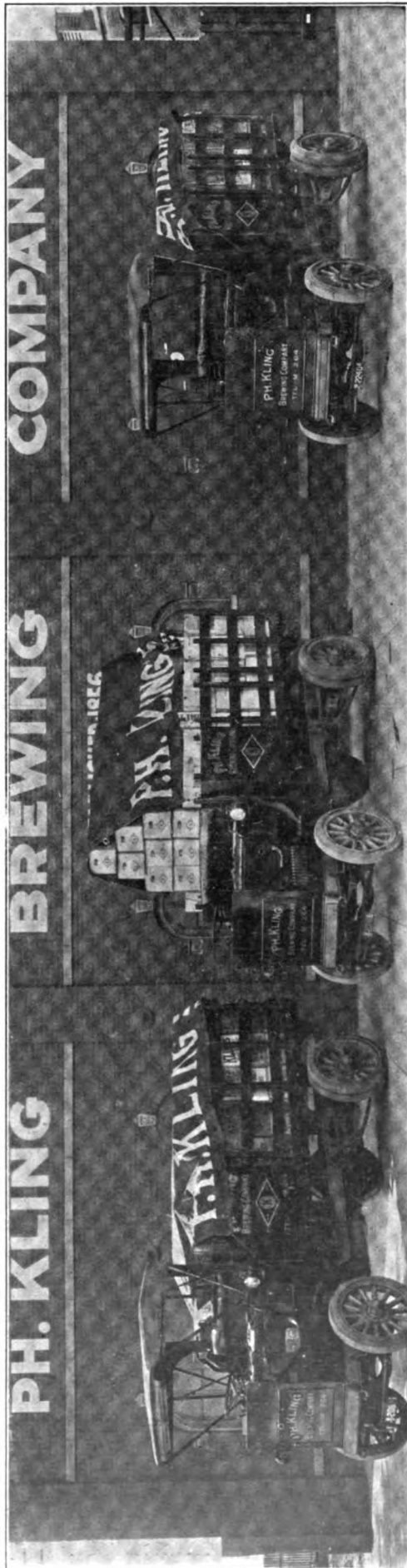
SAMPSON USED FOR TRANSPORTING BEEF



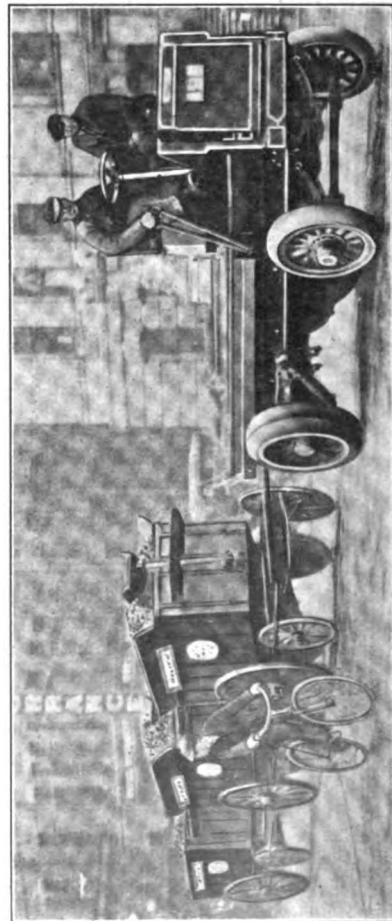
WHITE USED BY MASSACHUSETTS ARSENAL



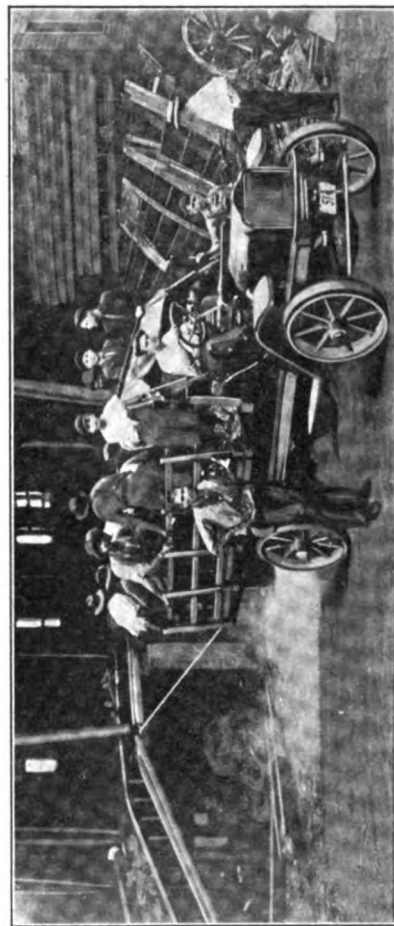
CHICAGO'S "BAD BOY" STEARNS WAGON



UNIVERSAL MOTOR TRUCKS IN BREWERY SERVICE IN DETROIT



ALCO TRUCK WITH 30 TONS OF COAL IN TOW



WHITE TRUCK RAZING A BURNED STABLE

FORD PRICES REVISED DOWNWARDS

Lops \$90 Off List of Both Runabout and Touring Car—Also Adds Delivery Wagon to 1912 Line.

Making new and lower prices on its established styles, the Ford Motor Co., of Detroit, Mich., for 1912 is adding a delivery car as a regular member of its line and at the same time is announcing an increase of production to 75,000 cars for the season. The Ford company makes but one chassis, known as the Model T and having a four cylinder, 20 horsepower engine. On this chassis the various differ-

porated in the flywheel, transverse springs, vanadium steel construction and a unique pedal-operated planetary gear transmission system with shaft drive. In its original form the Model T chassis was developed in time for the season of 1909, since which year it has been improved in detail from time to time, as in the replacing of plain bearings with roller bearings and similar improvements where they were possible.

In explaining why it will make 75,000 cars for 1912, the company incidentally offers statistics showing the amazing proportions of its business. It is claimed that there are over 100,000 Model T cars in use, and that the present Ford selling organization comprises three large reserve work-houses or service stations, 30 branches and

CRITICIZES BODY POSITIONING

Its Extension Over Rear Axle Prime Cause of Discomfort and Deterioration, Says Engineer—Remedy Advocated.

Suggesting an almost complete rearrangement of the position of automobile bodies with regard to the axles, a British engineer has advanced the opinion that present day practice which carries the extension of the body over the rear axle is largely responsible for increased deterioration of the car as a whole. Stiff spring suspension is made necessary, he says in substance, and he proceeds to prove, to his own satisfaction, at least, that the employment of sufficiently flexible springs necessitates that the passengers' seats be in front of the rear axle.

"Road shocks on the wheels and axles are unavoidable," he says. "The problem is to make the connection between the frame and the axle such that these road shocks are so softened as to be negligible by the time they reach the frame. The whole point is that these violent stresses must not reach the frame; no subsidiary device interposed between the frame and the passengers can be considered as meeting the real difficulty. It is necessary, therefore, to have a spring of such suppleness connecting the axle and the frame as will give to the road shocks without having the power violently to raise the weight of the frame and the body."

"As the supple tree gives to the blast while the stiff tree is torn up by the roots," he explains, "so the supple spring gives to the road while the stiff spring transmits a shock to the whole of the car."

"In practice," he continues, "the employment of a supple spring brings the designer against the problem of how to allow for greatly increased movement of the wheels and axle, for the wheels and axle will have greater movement in the same way as the top of the supple tree moves vastly further than the top of the stiff tree. It is quite impossible to allow for this movement if the frame and the body project over the rear axle." "It is not necessary to elaborate this point," he says further, "for a moment's examination of any car on which the frame and body project over the rear axle will show that if the wheels and axle were allowed to move with considerably greater freedom than these parts would bump against the frame and body."

"Now to sufficiently raise the frame and body is impracticable for several important reasons which it might be tedious to discuss in detail, and the designer is driven to find some other method. And thus we come back again to the position of the back seat in front of the rear axle. The only practical method is to make the frame end in front of the rear axle and to let



FORD \$700 PANEL TOP LIGHT DELIVERY CAR

entiations of body are made that result in the touring car, the roadster, the runabout, the coupe and the delivery car. The price of the Ford touring car for 1912 is to be \$690, as against \$780 for 1911, and the price of the two-passenger runabout and of the three-passenger roadster having a rumble seat is to be \$590, as against \$680. The new delivery car, which has a carrying capacity of 750 pounds, is to sell for \$700, complete with panel delivery body, windshield and accessories. As during 1911, the prices on the pleasure cars include very complete accessory equipment, including top, windshield, speedometer, five lamps, generator, horn and tools.

In respect to mechanical features the Model T continues with only minor changes, the essential features being in every respect the same as during 1911. These include as characteristic elements a block motor with all four cylinder heads removable as one piece, a magneto incor-

porated in the flywheel, transverse springs, vanadium steel construction and a unique pedal-operated planetary gear transmission system with shaft drive. In its original form the Model T chassis was developed in time for the season of 1909, since which year it has been improved in detail from time to time, as in the replacing of plain bearings with roller bearings and similar improvements where they were possible.

Will Manufacture Hupmobiles in Canada

The Hupp Motor Car Co., of Detroit, which during the past year has operated an assembling plant in Windsor, Ont., which is opposite Detroit, is making ready to erect a real manufacturing plant in the Canadian city. An option on a site on Mac-Dougal street has been secured, but the Hupp people cannot obtain possession until the transaction is ratified by popular vote. When this is done it is the intention to turn out about 3,000 Hupmobiles annually for the Canadian market.

the body project so little that it is still well clear of the wheels and axle. We then have, so far as this part of the car is concerned, ideal conditions—the wheels and axle free with plenty of room to bump about as the work on the rough road necessitates, and thus able to be connected to the frame by springs so supple that no harsh, violent movements can be transmitted to the frame, the machinery and the coachwork. In this way we secure not only the maximum possible comfort for the passengers, but also the minimum of stress for the frame, with consequent ability to travel fast and safely over a rough road surface.

"Obviously the coachwork can suffer only from such stresses as are transmitted to it by the distortion of the frame. So the more we can lessen these distortions the better for the coachwork, and the most direct method of doing this is to absorb the road shocks in the springs."

"Now that the mechanical side of motor cars has reached such perfection," he says in conclusion, "interest is chiefly centered in the arrangement of the car as a whole, or, I might say, in any such rearrangement of its standard component parts as will make it a more perfect road vehicle, more comfortable, more convenient and more suited for the rapid travel we desire over the rough roads we so often have to traverse. . . . I believe the comparative stiffness of springing, necessitated when the body is back over the rear axle, is the most serious and annoying defect of the motor car today."

Dealers Sue Sheriff for Damaged Car.

The Sheppard Motor Co., of New York City, has sued James J. Kelly, Sheriff of Hudson county, New Jersey, for alleged damages to an automobile seized by him in attachment proceedings brought by Mrs. Cecilia Buck, president of the Communipaw Motor Vehicle Co. In the bill of complaint it is claimed that someone who had access to the automobile while it was in the Sheriff's custody damaged the car by driving it 740 miles, wearing down the tires, breaking lamps and steps and badly damaging the top. No one connected with the Sheriff's office admits having used it, but the Sheppard company holds the Sheriff responsible for the safe-keeping of the machine, which was valued at \$1,400. The attachment was removed recently and it was then that the car was discovered in a condition suggesting an unusually strenuous "joy ride."

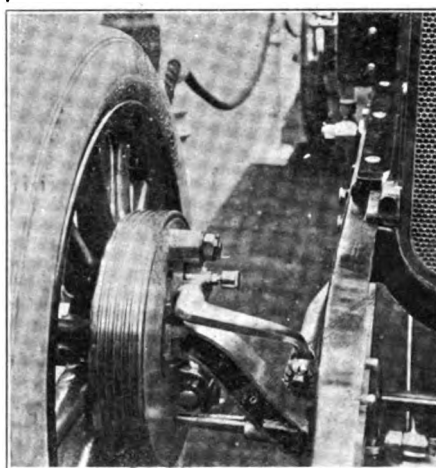
Lighting Company Removes to Holyoke.

The Auto Lighting Co., previously located at 154 Dwight street, Springfield, Mass., has been induced to remove to the adjoining city of Holyoke. Through the influence of the Holyoke Board of Trade the company, which is capitalized at \$30,000, secured a portion of an old warp mill on Main street.

ISOTTA HERE WITH FRONT BRAKES

Latest Models of Italian Car Disclose Trends of Foreign Practice—What They Are and Their Purposes.

Embodying many of Europe's latest kinks in automobile construction, such as front wheel brakes, leather disk universal joints, chain covers and the like, several 1912 Isotta Fraschini models have been received by J. M. Quinby & Co., of Newark, N. J., who, in addition to being body builders of real note, are also the American distributors of the Isotta line, popularly known as the "I-F." All of the chassis received from the factory in Milan, Italy,



ISOTTA FRONT WHEEL BRAKE

are unusual in that they are equipped with front wheel brakes, which are operated by an emergency hand lever. These brakes take the place of the more usual transmission brakes, and it is claimed for them that they reduce skidding to a minimum and that they equalize that portion of the tire wear directly resulting from braking, while their efficiency, by reason of having the braking effect on four wheels instead of two, is claimed to be almost doubled.

Long-stroke motor design is continued, with detail refinements in the motor looking to silence and increased flexibility. All of the moving parts have been enclosed by aluminum covers, to assist silence, lubrication and protection from dust. Chain covers are a feature of the chain driven models, the covers being rigidly attached to the radius rods, with no loose or rattling joints. The shaft driven models have the patented Isotta leather disk universal joint, which at any angle preserves identical speed between the driving and the driven side, so that no second universal is necessary for equalization. It is claimed for the leather disk coupling that in addition to requiring no lubrication or adjustment, it serves the function of being a sound deadener in respect to vibrations from the rear axle gears, further aiding in the silence of running. The Quinby company is offering

four size of chassis, viz., 15-20 horsepower, 25-30 horsepower, 35-45 horsepower and 100-120 horsepower.

Where Chauffeur's Sins Find Him Out.

Although the German automobile regulations or laws do not specifically say that a man who has been found guilty of assault shall not be given a chauffeur's license, the German police authorities have, at various times, taken the stand that such a person is not fit to be trusted with the handling of a motor car. It remained for one of the higher courts of Prussia, equivalent to the Circuit Court of Appeals in one of the States of the Union, to decide once for all whether or not the police authorities had any right to refuse a chauffeur's license for the reason given. And the court placed itself squarely in favor of it.

In the case in question a chauffeur who had been arrested and punished no less than sixteen times—including six times for assault, five times for using foul and insulting language, twice for resisting an officer, and once each for threatening with a dangerous weapon, damage of private property and interfering with public conveyances—applied for a driver's license, but was refused when the police started to look up his character. The chauffeur applied to the courts but lost in every instance, the case going to the court of appeals so as to make a test case valid all over the kingdom of Prussia. In his decision the presiding justice said: "The law does not specify the offenses for which one must have been punished in order to be ineligible to drive a motor car, but it does say that no man 'unfit to drive' should be given a license. The offenses for which the applicant has been punished show him to be of highly choleric disposition, of leaning towards quarreling and fighting and the use of foul language. Taking into consideration that driving an automobile in crowded traffic requires a steady, quiet temper, and that it tends to accentuate whatever tendencies a man may have to quarrel or fight, we find that the appellant cannot be considered a man to be trusted with the running of a motor car."

A. C. A. Special Rate Leads to Trouble.

The discount of 20 per cent. from current rates granted to members of the Automobile Club of America and subscribers to its Bureau of Tours, has gotten the London, Liverpool and Globe Insurance Co., and the brokers who made the arrangement, into trouble with the State authorities. The insurance company and the brokers, R. C. Rathborn & Son, have been cited to appear before the State Insurance Department and explain their action in the matter, which it is charged is a violation of the insurance law, which prohibits discrimination in rates. In its defense, the insurance company states that the arrangement complained of was discontinued some time ago.

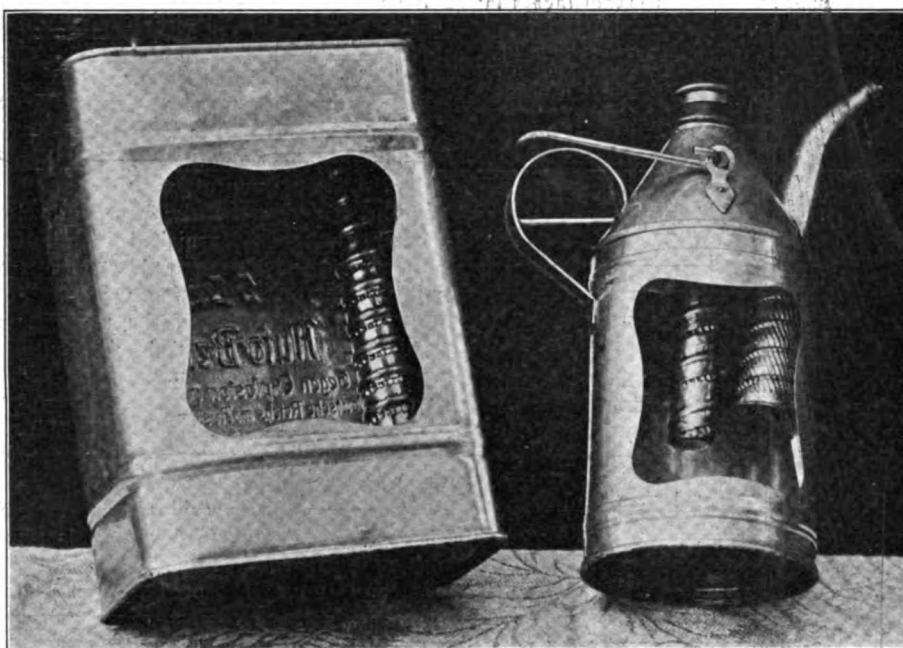
FOR PREVENTION OF EXPLOSION

How the Langrehr Tube Serves That Useful Purpose—Easily Applicable to Tanks and Other Receptacles.

That many of the fires due to the handling of gasoline are easily preventable was the sum and substance of a lecture delivered by Bernhard Zwillinger, Ch. E., which preceded the demonstration of the

through the interstices, feeding the flames until the supply is exhausted. A momentary covering of the opening of the tank or can will extinguish the flame immediately, and it is asserted by the inventor that no flare-back ever has resulted. The rather startling demonstrations following the lecture fully bore out the claim that ignition of the liquid was impossible.

The most spectacular of these tests consisted of putting a small quantity of gasoline into a can, introducing a current of

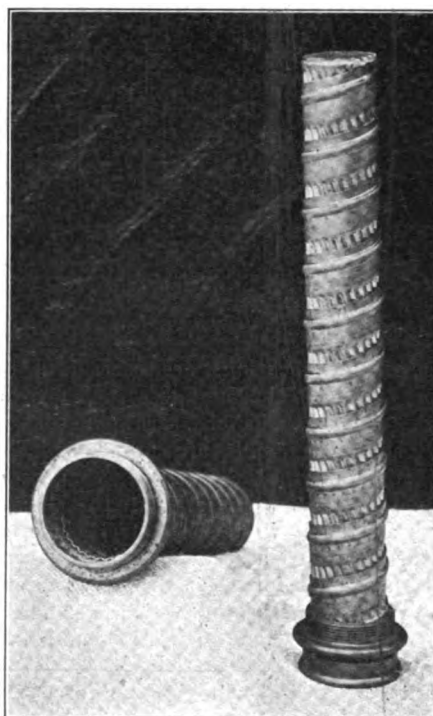


GASOLINE CANS FITTED WITH THE LANGREHR DEVICE

new Langrehr safety device at the laboratories of the Berlin Chemical Co., at 560 West 171st street, New York City, a resume of which appeared in last week's Motor World. Mr. Zwillinger's remarks showed plainly that the object of the Langrehr device is not so much the prevention of the ignition of gasoline as the prevention of explosions. If a tank or can, partly filled with gasoline is fitted with one of the Langrehr tubes, as shown in the accompanying illustrations, the gasoline fumes issuing from the opening may be ignited as easily as if no safety device were present, and the contents of the can or tank will continue to burn until every vestige of the combustible liquid is exhausted. What the device is claimed to prevent is the communication of the flame on the outside of the tank to the air-mixed vapor inside.

The device is so constructed as to cool the gases of combustion in their passage through the interstices of the tube, so that the fire which may rage on the inside of the tube is not able to penetrate the relatively small holes which give access to the gasoline surrounding the tube, even though the latter be mixed with air in the most dangerous proportions. The heat generated by the burning vapor on the inside of the tube is sufficient to gasify the liquid surrounding it and to force it

air and then lighting the fumes that issued. Despite the fact that the flame was about two feet long no flare-back resulted.



LANGREHR SAFETY TUBE

WHY SOLID TIRES REQUIRE COOLING

Hoopengartner Points Out Its Importance—Shows Wherein Other Attentions Are Profitable.

If that average man experienced only with pneumatic tires who fancies that because solid rubber tires are not subject to punctures and blow-out they require no thought or attention—if he had been present at the last meeting of the New York Motor Truck Club he would have learned more than the proverbial thing or two. E. O. Hoopengartner, New York manager for the Swinehart Tire and Rubber Co., delivered an address on that occasion, in which he pointed out that oil, cuts and overloads all have their baneful effect on solid tires, exactly as they exert it on pneumatics, and sought to show that lack of care results in the same short life and increase of maintenance.

Solid tires being designed for heavy loads, Hoopengartner emphasized the great friction and therefor great heat to which they are subject and dwelt at some length on the necessity for cooling such tires as much as possible, in which connection he urged the use of not only larger tires but larger wheels. Among other things, he said:

"In so far as 90 per cent. of delivery wagons and motor trucks are operated on solid tires," he said, "the item demands greater and more careful consideration. There has been considerable agitation in the last year or two in regard to the use of pneumatic tires on commercial cars, and some builders advocate these tires on trucks under two-ton capacity. This idea has been followed out more abroad than in this country, and, owing to the better road conditions, has met with some success, but these tires can only be recommended for light cars, where the nature of the work demands quick deliveries, or where the load itself is of such a nature that it cannot stand the vibration which must be expected from solid tires.

"Truck manufacturers, users and tire makers themselves are all interested in securing the most economical service on solid tires. A great opportunity for the truck builders to effect a more economical tire cost is for them to equip their product with ample tires. We have known a great many cases where the tire expense and trouble were more than cut in half by the application of adequate sized tires.

"While the matter of having the car properly equipped in the first place is of supreme importance, yet the proper care of the tires, once applied, is a close second. A great deal of energy and effort have been expended in the direction of the up-keep and care of pneumatic tires, but it has been taken for granted, that, once a solid tire

has been applied, it required no effort or intelligence, and, as a result, the truck has proceeded to be sometimes expensive.

"There is a great deal of friction necessarily induced in propelling a heavy truck with a load. Therefore, heat being one of the greatest factors in the deterioration of a tire, the temperature of a tire should be kept as low as possible. One of the most practical means for overcoming this in commercial trucks is to use wheels of a large diameter.

"I believe that a 42 x 5-inch dual tire will give longer service, and consequently more satisfactory results, than a 36 x 6-inch dual. I have recently had occasion to observe a 3-ton truck equipped with 48 x 6-inch single tires. These tires, after having been in service for about 3,500 miles, show practically no wear, and we think that there is no question but what the engineering difficulties which are presented in a high wheeled car will be more than compensated for by increased service of the tires.

"Take, for instance, a wheel of 34-inch diameter, and one of 48-inch. The ratio of the circumference is as two to three. In other words, a tire on a 34-inch wheel would come in contact with the ground three times where a tire on a 48-inch wheel would touch the ground only twice. This gives a tire 50 per cent. longer time to cool, and this, taken into consideration along with the greatly lessened shock received by the tire on a large wheel, going over rough pavements, makes a big difference in the wear of the tire.

"Another very important point to be taken into consideration, and which favors the dual tire, is the much larger cooling surface presented on, for instance, two four-inch tires, rather than one eight-inch. The heat being one of the worst enemies of rubber, it can be readily understood that this is a large factor, small bodies cooling more readily than large ones."

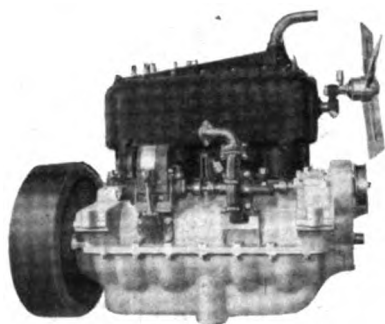
Regarding the proper care of tires, he states the already well known fact that speeding is poor economy. Surveillance of the driver, he suggests, is the only sure method of stopping this form of abuse. "Another unnecessary strain," he says, "is to permit the car to stand over night or for any length of time with its load; it would be more economical to remove the load or jack up the car."

That "service" is of vital import to the tire industry as is the sale and maintenance of the trucks themselves, was the keynote of the discussion which followed. While practically every manufacturer of tires is prepared to render quick service in emergency cases, it was shown that several already have rapid emergency wagons which can be despatched at short notice to render aid. Carrying the matter of service even further, it was brought out that one of the tire companies had requested a truck manufacturer to furnish a set of wheels which could be kept tired in readiness for instant use.

CONTINENTAL'S NEWEST ENGINE

Well Known Manufacturers Produce One of Long Stroke Type, Newly Designed Throughout—Its Specifications.

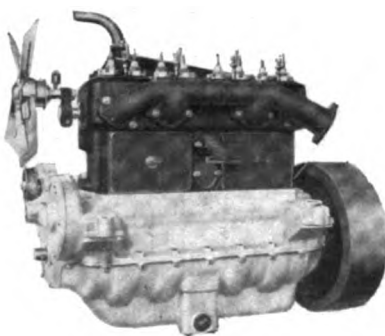
Inasmuch as the power equipment of no inconsiderable number of motor cars emanates from the factory of the Continental Motor Mfg. Co., of Muskegon, Mich., in the form of Continental motors, proportionate interest attaches to the fact that the company has brought out a new motor, styled the Model C. It is of the long



CONTINENTAL "C" MOTOR—MAGNETO SIDE

stroke type, of compact design, and is newly designed throughout, after long experimental work. It is made in two sizes, viz., 3¼-inch bore x 5¼-inch stroke, and 4⅞-inch bore x 5¼-inch stroke. Both sizes can be furnished with either thermosiphon or pump water circulating system.

The crankcases are of nickel aluminum alloy, and are split in the center to give easy access to all the adjustable main bear-



VALVE SIDE OF CONTINENTAL "C" MOTOR

ings. These bearings are carried in the upper half of the crankcase. They are made of nickel babbitt, are generous in size, and, being split, are adjustable. For the adjustment of the bearings, liners or shims are used, which are .001 to .004 inch thick and made from sheet steel. The liners are removed as required and the bearings taken up for wear. Three bearings support the crankshaft, which is made of .45 carbon steel, drop forged and heat treated.

Lubrication is by a positive force feed constant level oiling system, having two plunger pumps. These pumps are oper-

ated by two camshaft eccentrics, one pump feeding into the large oil reservoir and maintaining the level, while the other forces oil directly to the helically cut timing gears at the front of the crankcase. Dippers are provided on the lower half of the connecting rod bearings, splashing oil to the oil grooves and bearings.

Special attention has been paid to the enclosed valve mechanism, the valve guides being cast separately and machined both inside and out. The valves practically operate in oil and are designed to be exceptionally quiet. The camshafts are drop forged from a single piece of low carbon steel, the cams being integrated with the shafts.

The Model C motor is supplied in complete unit power plant. The bell housing, which is cast integral with the crankcase, wholly encloses the flywheel and clutch. Power plants are furnished with multiple disk clutch and three-speed selective transmission. All the working parts are completely encased, making the motors proof against dirt and dust and contributing to their noiseless operation.

Truck Club Discusses Demonstration Fees.

Because of an intended long stay in Europe, Alfred T. Otto tendered his resignation as vice-president of the New York Motor Truck Club at the last meeting of that organization, held on the 27th ult., and it was accepted. Practically the only business that was transacted at the meeting had to do with the proposed establishment of uniform fees for truck demonstrations. The subject had been discussed at several previous meetings and still is in the hands of a committee which is endeavoring to frame a uniform system. The matter was brought up at the last meeting by a representative of Mack Bros. Motor Co., who stated that it was the universal policy of his company to charge \$15 a day for the demonstration of a light truck and \$20 a day for a three or five ton truck. In order to ascertain the views of the various companies as to a proper charge for the work, the secretary was authorized to communicate with all manufacturers, requesting them to suggest a suitable fee which can be standardized and adopted by most manufacturers.

Dealer Loses in Second Hand Car Suit.

Mary Lausecker, of Hoboken, N. J., has obtained a judgment of \$500 against DeWitt Romaine, a dealer at 225 Mercer street, Jersey City, for alleged breach of agreement. It appears that Mrs. Lausecker turned over her car to Romaine to be sold by him, on condition that she receive \$500, out of the selling price. Romaine, on the witness stand, admitted that he accepted the car, but claimed he was to allow Mrs. Lausecker the sum of \$500 on a new car to be bought of him. Judge Erwin, before whom the case was argued, decided for the plaintiff.

Positioning the Gasolene Tank; the Factors Involved

It is probable that there are few who realize that such an apparently simple problem as the locating of a gasolene tank on a chassis is not quite as simple as it looks. At first blush it seems that it scarcely can be called a problem and yet there is abundant evidence that to even this comparatively simple detail of construction there has been paid a much greater

amount of attention than appears on the surface. Obviously it is absolutely essential that the gasolene be delivered to the carburettor. Also it must be delivered positively at all engine speeds regardless of whether the car is moving smoothly over good roads or whether it is bouncing and jouncing over "roads" which bear resemblance to ploughed fields. Therein lies a material part of the problem; that the gasolene shall feed properly on any grade up which the car can be driven constitutes the remainder of the problem.

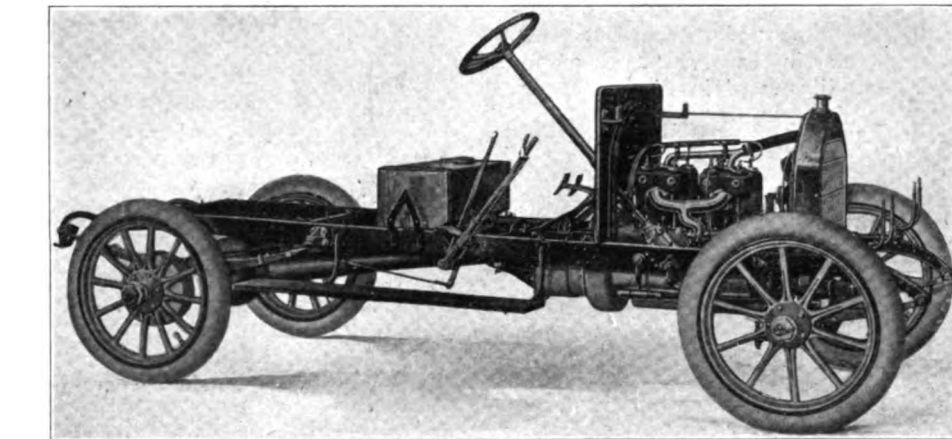


FIG. 1—CONVENTIONAL ARRANGEMENT WITH TANK UNDER FRONT SEATS—THE OHIO

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Obviously it is absolutely essential that the gasolene be delivered to the carburettor. Also it must be delivered positively at all engine speeds regardless of whether the car is moving smoothly over good roads or whether it is bouncing and jouncing over "roads" which bear resemblance to ploughed fields. Therein lies a material part of the problem; that the gasolene shall feed properly on any grade up which the car can be driven constitutes the remainder of the problem.

From the first, the location of the tank beneath the front seats in touring cars or behind them on runabouts has been the most popular; a conservative estimate would be that on at least 75 per cent. of the cars on the road, it is so placed. In the majority of them, gravity alone is relied on to insure the feeding of the fuel, but while this system undoubtedly is the simplest—merely a tank and a length of piping to connect it with the carburettor—it necessitates very careful designing to obviate the possibility of the cessation of gasolene flow when the car is tilted on grades.

For this reason, the carburettor must be placed as low as possible consistent with accessibility. There are very few carburettors that do not require slight adjustment from time to time, though this fact has been overlooked by several manufac-

turers, who have placed them so low that they cannot be reached except from below, and in at least one instance this requires that the underpan be removed. On the score of accessibility, the under-the-seat location of the gasolene tank is not as good as some other locations, as it requires that both occupants of the front seat move when it becomes necessary to fill

the tank. Also this location prevents the space under the front seats being used for anything else, such as the storage of tools, spare parts or other incidentals.

If the tank is not located under the seats, or as in the case of runabouts, behind them, but is hung under the body at the rear, other complications arise, and it is largely to this fact that the gravity feed

system owes its popularity. When the tank is hung at the back it is then either lower than the carburettor, or so nearly level with it that on even slight grades the fuel will not feed by gravity and some form of pressure is necessary. Only light pressure is necessary (about two pounds) and generally this is obtained and maintained con-

stant by means of an automatic valve which admits a small part of the exhaust gases to the tank. A small hand pump is provided to obtain the initial pressure to fill the carburettor, after which the pressure is maintained automatically.

Often the pressure feed system is used out of necessity and not out of choice. The present tendency toward low-hung cars with an ever increasing touring radius necessitates a larger tank and one that is hung lower, and as there remains only the alternative of placing it under the body at the back, pressure feed must be used. On the other hand, the pressure feed system is used in as many cases because the manufacturer believes that it is in every way superior to the gravity feed, though whether it is or not is an open question.

The pressure feed system requires an additional pipe line, a pump, and usually, a gauge on the dash to indicate the amount of pressure, all of which are missing from the gravity system. Also a slightly heavier tank is required, and as each of these items means extra cost, it is apparent that the gravity system is by far the cheaper of the two. In fact, it is claimed by a large number of manufacturers that it is not only cheaper to install but because of its simplicity it also is cheaper to maintain and is longer lived.

Certain it is there is less to get out of order. It weighs less because of the lighter tank which may be used, and the absence of piping and other fixtures, and a feature which should not be overlooked is

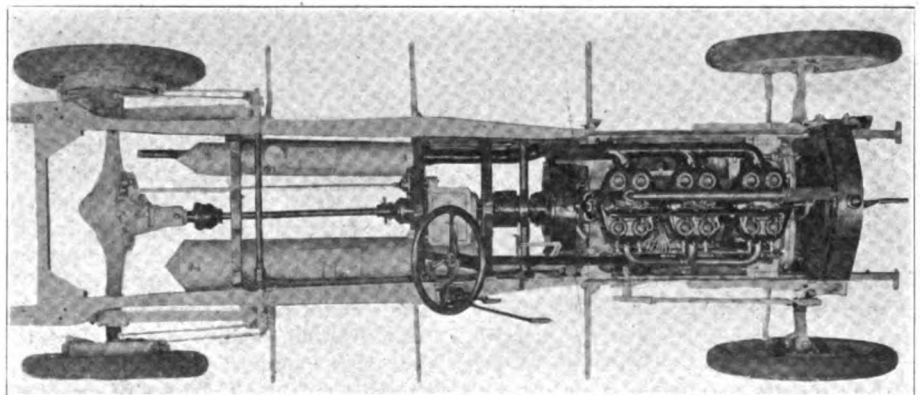


FIG. 2—THOMAS PRESSURE FEED SYSTEM WITH TANKS UNDER BODY

that because there is no pressure on the gasolene, leakage must be slower in case of damage to the tank; this minimizes the risk of danger from fire. When the tank is placed high enough for the fuel to feed by gravity, the center of gravity of the car is raised, of course, but this is not a serious matter and almost may be disre-

garded.

garded. The danger of the pipe line becoming clogged is remote, provided the gasoline is carefully strained and any foreign substance large enough to obstruct the fairly large pipes which now are used would be readily discernible in the gasoline before it was put into the tank.

Though it has been stated that when na-

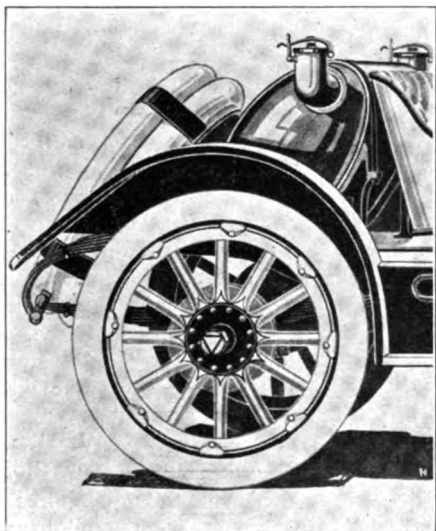


FIG. 3—HUDSON TANK WITHIN A TANK

ture and man can obtain the same results, man invariably introduces unnecessary complications, the fact remains that under certain conditions the pressure feed system possesses advantages which the gravity feed system does not, in spite of the state of perfection to which the latter has been brought in the last few years. The

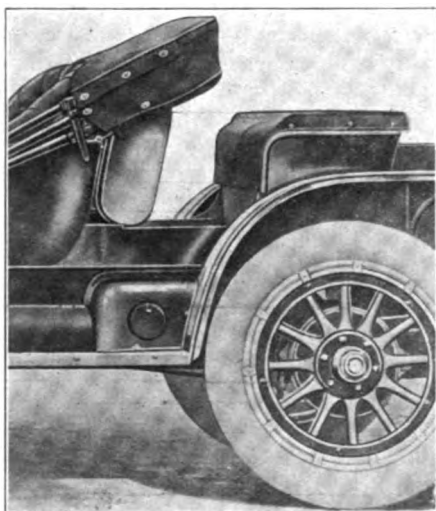


FIG. 4—ARRANGEMENT OF KNOX TANK

principal of these is that the "head" on the gasoline is constant regardless of road conditions. With the gravity feed system it may vary, but with the pressure feed system it cannot. Therefore, when a car equipped with a pressure feed system is climbing a hill, with the tank very nearly empty, the "head"—or pressure—on the gasoline remains the same as when the

tank is full, whereas with the gravity system the "head" would be least, when, in order to supply the increased demand, it should be greatest.

The pressure feed system allows of greater latitude in the location of the tank, but at the same time, as already stated, it requires extra piping, valves, etc., which may be the cause of trouble. They seldom are, however, despite the necessity for airtight joints. The vent which is necessary in the tank in gravity fed systems is not required when pressure feed is used and this is an advantage, inasmuch as evaporation is reduced, slopping is done away with and the likelihood of dirt getting into the tank is greatly lessened.

Generally when the tank in gravity fed systems is located under the front seats, it is rectangular in shape, as shown on the Ohio chassis illustrated in Fig. 1. Cylindrical tanks have been used but have given

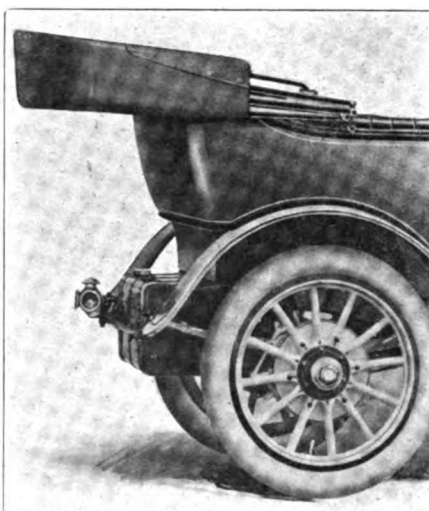


FIG. 5—ACCESSIBILITY OF WINTON TANK

way to the rectangular form principally for the reason that a cylindrical tank in the same space must necessarily be of smaller capacity. Though it has been pointed out that in this position the tank cannot be reached in case it is damaged except by removing the body, the very fact that it is under the seats and therefore fully protected reduces the likelihood of injury from external sources to the minimum.

The internal source of injury is found in the force of the gasoline splashing against the sides and top and straining the joints. The amount of this force may be estimated from the old saying to the effect that "a pint is a pound the world around." Of course the actual weight of gasoline varies according to its specific gravity, and while in any case it is less than a pound to the pint, it is very little less, and assuming that the average tank holds about 20 gallons, it readily may be appreciated that the force is considerable. To render this force less destructive, some manufacturers fit their tanks with splash plates, though the majority of them make the tanks themselves heavy enough to withstand the strain.

The tank within a tank arrangement, whereby an auxiliary supply of gasoline is carried for use in case of an emergency, is gaining in favor and is now used more than ever. With this arrangement, a three-way valve generally serves to allow the gasoline to be drawn from either of the tanks at the will of the operator, or to be shut them both off when the car is left unattended. Obviously, the logical place

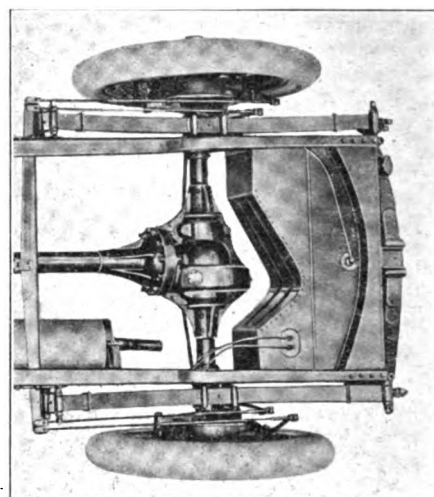


FIG. 6—POSITION OF THE LOZIER TANK

for such a valve is outside, where it can be reached immediately, though in some makes of cars it has been placed under the foot boards in a very inaccessible place.

In runabouts, the gasoline generally is fed by gravity from a tank located behind the seats, this position making use of otherwise wasted space and permitting tools and spare parts to be stored under the seats. Incidentally the placing of the tank be-

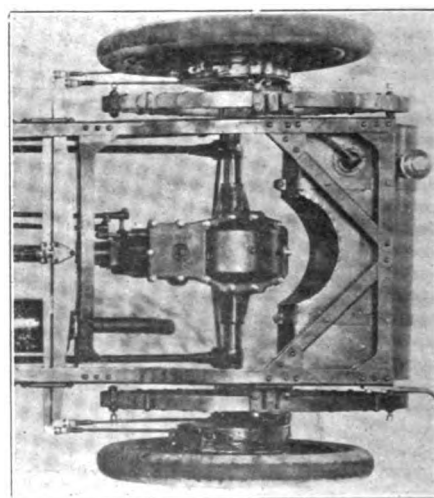


FIG. 7—MATHESON TANK UNDER CHASSIS

hind the seats imparts to the car a "racy" appearance. Just how "racy" the car may be made to look depends to a great extent on the shape of the tank, and manufacturers have not been slow to realize this feature. Merely by changing the shape of the tank the appearance of a car often can be altered from a speedy looking "flyabout" to a sedate gentleman's roadster.

One of the latest practices embraces the use of an auxiliary oil tank within the gasoline tank, such an arrangement being shown in Fig. 3, which is illustrative of Hudson construction. As may be seen in the picture, the double purpose of the tank may be only suspected by reason of the two filler caps. The capacity of the gasoline tank is 30 gallons, while the internal oil tank holds 10 gallons. The Knox tank, which is illustrated in Fig. 4, is oval in shape and slightly flattened, leaving ample leg room for the occupant of the third seat in the rear. The capacity of the tank is 16 gallons.

The combination of gravity and pressure feed is by no means uncommon, and a number of manufacturers now make use of this system. The arrangement of the piping and pump is practically the same as when the pressure system alone is used, the pressure being merely auxiliary. Ordinarily a vent is required in the tank when the gasoline is fed by gravity alone, and its disadvantages are overcome when the two systems are combined. Naturally the combination allows of the advantages of both systems, while at the same time if the apparatus by means of which the pressure is obtained should be crippled, it would only be necessary to loosen the filler cap, when the gasoline would flow by gravity, provided the line was not obstructed.

Illustrated in Fig. 2, the location of the Thomas gasoline and oil tanks is unique. Both gasoline and oil are fed by pressure, the tanks being located under the body and on opposite sides of the chassis frame, to which they are attached. They are therefore in a fully protected position. Extending from each of them a pipe leads up to a filler cap in the floor boards of the tonneau, and both tanks may be filled without the necessity of disturbing the occupants of the car. Incidentally the proximity of the oil tank to the exhaust pipe insures its maintenance at an even temperature and its viscosity remains practically the same regardless of weather conditions.

The Winton method of carrying the gasoline tank at the rear of the chassis, which, with but slight modifications, also is used by a large number of other manufacturers, is illustrated in Fig. 5, and shows graphically the accessibility which this location gives and the ease with which the tank may be filled without disturbing the passengers. Generally when tanks are so placed they are protected from accidental injury by means of wooden slats held in place with bands that encircle the tank. The Winton tank is protected by a cross rod between the rear springs.

The Lozier tank, illustrated in Fig. 6, also carried at the rear and below the chassis, is located a little further forward than is the general custom and comes entirely in front of the cross member of the rear three-quarter platform spring suspension by which it is protected. Owing to its

location it is necessary that it be shaped as shown in order to allow for the movement of the differential housing and axle and at the same time provide sufficient capacity. Needless to say, the gasoline is fed by pressure, this being obtained by means of a valve which permits a part of the exhaust gases to enter the tank. A somewhat similar arrangement of the tank is shown on the Matheson chassis, which is illustrated in Fig. 7. This tank also is cut away to make room for the differential, though unlike the other it projects further.

Between gravity and pressure feed there really is very little to choose; both have been brought to a high state of perfection and it is seldom that either gives trouble. There is this in favor of the first-named, however: there is practically nothing to get out of order, and the only thing that could happen to it would be a stoppage or a break in the piping. Similarly, in the location of the tank—under the front seats or behind them or below the body at the rear—there is little advantage. When the tank is placed nearer to the center of the chassis it makes for a more even distribution of weight, but the weight is relatively so small that it makes very little difference. With the tank at the rear, a greater weight is placed on the rear tires, but while this might be expected to cause the tires to wear more rapidly, the reverse has been found to obtain. Which is to say that the added weight tends to hold down the wheels and the tires in better contact with the road, the result being that slippage of the wheels is reduced and the wear therefore is likewise reduced.

St. Louis Show in Summer Garden.

St. Louis has the distinction of holding the first trade show of 1912 automobiles in 1911. It is under the direction of the St. Louis Automobile Manufacturers and Dealers Association, and is a feature of Veiled Prophet week, which began Monday last and will continue until Saturday, 7th inst. It comprises 55 pleasure cars displayed in Forest Park Highlands, one of the largest summer gardens in the Missouri city, and is styled an open air show, although it is housed in a pavilion, which, however, has been transformed into an "autumn forest." The ceiling and walls are covered with foliage, taken from the woods, and southern mosses, and the posts disguised with birch and oak bark, with grape vines twined around them. The signs designating the various exhibits also are of rustic design, and the electric lamps which illuminate the building are concealed behind foliage. The firms exhibiting and the cars shown are as follows:

Buick Motor Co.—Buick; Bagnal Automobile Co.—Cadillac; Missouri Automobile Co.—Amplex and Marmon; Moon Motor Car Co.—Moon; United Motors St. Louis Co.—Maxwell and Columbia; Halsey Automobile Co.—Packard; Chicopee Motor Car Co.—Stevens Duryea and Cutting;

Overland Automobile Co.—Overland; Park Automobile Co.—Chalmers, Thomas and Baker Electric; Kardell Motor Car Co.—Reo; Kissel Kar Co.—Kissell; Layne-Lynce Motor Car Co.—Marion and Owen; Olds Motor Works—Oldsmobile; Woods Motor Vehicle Co.—Woods Electric; Cook Motor Vehicle Co.—Firestone-Columbus, Krit and Columbus Electric; Southern Auto & Machinery Co.—Ohio; Preismeyer-Stevens Co.—Waverley Electric; Lindsay Motor Car Co.—Premier and Inter-State; Weber Implement Co.—Lozier and Mitchell; Brown Automobile Co.—Peerless; General Motor Car Co.—Locomobile, National, Hupmobile and Cole; Smith Automobile & Battery Co.—Ohio Electric; Superior Motor Sales Co.—Stoddard-Knight; South Side Automobile Co.—Stanley, Apperson and Corbin; Oakland Automobile Co.—Oakland; Studebaker Automobile Co.—E. M.-F., Flanders and Garford; Union Electric Light & Power Co.—Rauch-Lang Electric; Johnson Automobile Co.—Moline; Stearns Automobile Co.—Stearns; Simplex Motor Sales Co.—Simplex; Heinrich Automobile Co.—Michigan; Winton Automobile Co.—Winton; Binkman Automobile Co.—Nyberg; Mound City Buggy Co.—Halladay; Dorris Motor Co.—Dofris; Igou Motor Car Co.—Bergdoll; Western Automobile Co.—Pierce-Arrow; Phillips Automobile Co.—Hudson; Ford Motor Co.—Ford.

Hot Engines and Overheated Ones.

It may not generally be known that the term "overheated," when applied to an engine, means one of two things—that either the cooling water has commenced to boil or the paint on the engine has commenced to burn. In either of these two cases the motor really is overheated. But when the motor is merely hot—too hot perhaps for the hand to be rested on it—and neither of these signs is apparent no apprehension need be felt. It should be remembered that heat is power and up to a certain degree is desirable. A motor which runs almost cold is not operating at its greatest efficiency and measures should be taken to see that it runs hotter. The best way of doing this is to bend the fan blades slightly, though great care should be taken to see that they are not bent too much, in which case the motor probably will overheat in the true sense of the word.

Blumenstein Promotes Show in Canada.

Louis Blumenstein, who promoted several shows in smaller cities in the United States last season, has crossed the border, and in connection with the Ottawa Valley Motor Car Association, has planned a show in Ottawa. It will be held in Howick Hall, April 6th to 13th.

Providence, R. I., has appropriated \$11,000 for the purchase of two motor-driven combination fire wagons. Two similar vehicles are already in use in the city.

TIRES EXTRACTED FROM TURPENTINE

They Are Far Removed, But Scientists Assert Artificial Rubber at Last is Possible—Turpentine the Basis.

After years of unceasing endeavor and a series of false alarms, artificial or synthetic rubber that is not merely "like rubber," but that actually is rubber or caoutchouc, is now being produced in the chemical laboratory, according to Prof. Ira Remsen, president of Johns Hopkins University, and while at present it is worth almost its weight in diamonds, he declares that "it safely may be predicted that before many years have passed, rubber will be artificially prepared in quantity sufficient to supply the great and increasing demand for it." It is to turpentine that the chemists now look as the basis of supply for the artificial rubber of the future, the rubber being evolved as the result of a series of processes involving four general stages, but it probably will be years before tires extracted from turpentine will replace those that grow on trees, so to speak.

In order to make artificial or "synthetic" rubber, Remsen explains in the Scientific American, it first was necessary to determine the chemical nature of caoutchouc, and this was something of which very little was known until recently. In telling of how its chemical identification was brought about and how rubber is now being made from isoprene, he says in part as follows:

"In general terms it may be stated that chemists do not like to work with gummy substances, but prefer things that crystallize, or that boil without decomposition, or that form definite crystallizable products. Now caoutchouc does not crystallize, it does not boil without decomposition, and until a few years ago it was not known to be capable of yielding definite crystallizable products. Great impetus was given to its study by the discovery of Harries that it forms a well-defined product when treated with ozone, and that the ozonide thus obtained decomposes when boiled with water and yields levulinic aldehyde, a substance that can easily be identified.

"It also has been shown that caoutchouc forms a so-called nitrosite when treated with nitrous acid, and this nitrosite can also easily be identified. These facts make it possible for the chemist to tell whether he has caoutchouc in hand or not and the scientific study of the substance has been materially advanced in consequence. Before the discovery of these facts a product had been obtained artificially that was described as 'like rubber,' but the question whether it was identical with caoutchouc or not could not be definitely answered. Now it is possible to determine with certainty whether a substance is or is not caoutchouc.

"To identify caoutchouc after you get it is one thing, to determine what it is is quite another. The first step towards the solution of this problem was taken a number of years ago when Greville Williams showed that when rubber is heated to decomposition a very volatile substance is formed which he called 'isoprene.' This boils at 36 deg. C. and is a hydrocarbon of the formula C_5H_8 . Later Harries found that this same hydrocarbon is formed by the action of moderate heat upon oil of turpentine and other terpenes. This isoprene has come to be the chief factor in the artificial preparation of rubber, for it is this substance which when exposed to certain conditions is converted at least partly into caoutchouc. . . .

"In the summer of 1909 Harries received from an English firm a specimen of a substance which it was claimed had been made artificially by a process patented by Dr. Heinemann in England. Harries found that the substance was in fact caoutchouc, but he did not believe that it had been made artificially. Heinemann's method consisted in passing acetylene, ethylene and methyl chloride together through a tube heated to redness. Harries could not make this work and others who tried it also failed.

"Up to this time the experiences of Harries had been anything but encouraging. In November, 1909, he received from the Elberfeld Color Factory some specimens of artificial rubber which had been made from isoprene by a secret process devised by Dr. Fritz Hofmann. This led Harries to take up his own experiments on the subject again, and toward the end of January, 1910, he was in a position to apply for a patent. The method devised by him consists in heating isoprene with strong acetic acid in a closed tube. The product thus obtained is unquestionably caoutchouc.

"From the scientific point of view the problem of the artificial preparation of caoutchouc is thus solved, but it is a far cry from this to commercial success. Given isoprene in sufficient quantity and at a sufficiently low price and the commercial problem will be solved. At present artificial rubber is almost as precious as the diamond, but, on the whole, the problem is in a more hopeful state than the indigo problem was for years after the start was made. The manufacturers and those who are carrying on chemical investigations for them are, plainly of the opinion that the work is worth while. That great firm, the Baden Aniline and Soda Factory (generally called the 'Badische') has taken out a number of patents in this field, and this is most significant. It is this firm that worked out the indigo problem and is now supplying the world with artificial indigo, having expended in the preliminary work millions of dollars! It is this firm that is placing the manufacture of artificial nitrates upon a firm scientific basis—probably the most important problem before the world, as it

involves ultimately the food supply. It may safely be predicted that before many years have passed rubber will be artificially prepared in quantity sufficient to supply the great and increasing demand for it. Meantime there is no danger of a famine, as plantations are springing up to supplement the supply of wild rubber.

"As has been pointed out, the first thing to be done is to get enough cheap isoprene. The only way to do this that appears to be in the least promising is to make it from oil of turpentine. In this connection it is of interest to note that Staudinger and Kleven have succeeded in increasing the yield of isoprene obtained from the terpene, dipentene, by heating to a high temperature the vapor of the terpene under diminished pressure. When the pressure is sufficiently low the yield is about 60 per cent. This is a very important observation for the purpose in view. Dipentene itself does not, to be sure, occur in nature in very large quantity, but the chief constituent of American oil of turpentine is pinene, a substance of the same composition as dipentene, and pinene is converted into dipentene by heating it to 250 to 270 deg. C. The way out may therefore be through turpentine. To recapitulate, turpentine contains pinene. Pinene is converted into dipentene by moderate heat. Dipentene when heated to a high temperature under diminished pressure yields isoprene. Isoprene can be converted into caoutchouc by heating it with concentrated acetic acid and by other methods that need not be described here.

"There are other hydrocarbons similar to isoprene that undergo changes similar to that by which isoprene is converted into caoutchouc, and there is therefore a prospect of the ultimate preparation of a number of products similar to rubber, but differing from it in some respects."

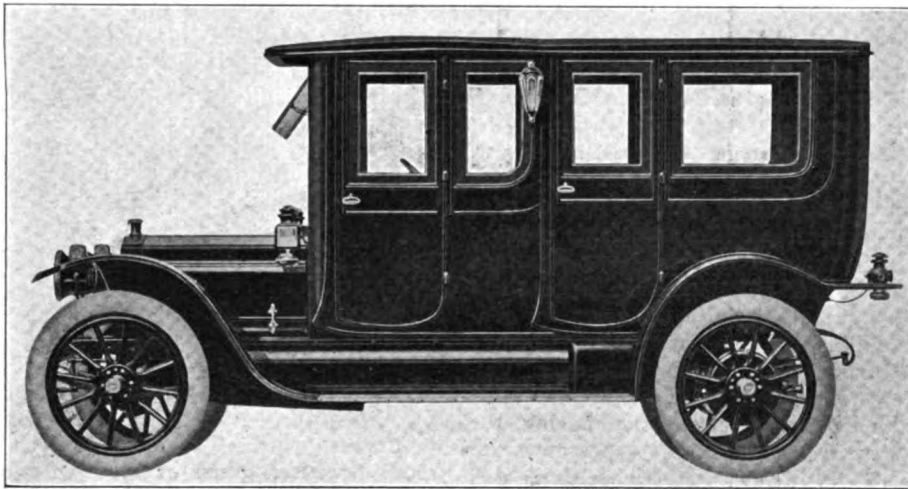
When Sprags Are Not Dependable.

That a sprag or drop brake, used to prevent a car running away backward in case the brakes fail on a hill, is useless on soft roads, is obvious, and also that it is not always dependable on roads that appear hard, recently was instanced when on a steep hill the operation of changing to low gear was fumbled and the car immediately commenced to run backward down the hill, despite the fact that the sprag had been dropped before the climb was attempted. Luckily the car was brought to a stop by means of the emergency brake. Subsequent investigation revealed the fact that, like many others, the road consisted of a hard upper crust over a very much softer foundation. When the sprag "bit" it simply drove through the hard crust and "kinked" in the middle without serving to stop the car. The moral is obvious: As it is not always possible to judge of the character of a road, too much dependence should not be placed on a sprag at any time.

RAMBLER REVEALS ELEVEN MODELS

They Include a \$1,650 Leader and a Double Limousine, All Named Instead of Numbered—Detail Mechanical Changes.

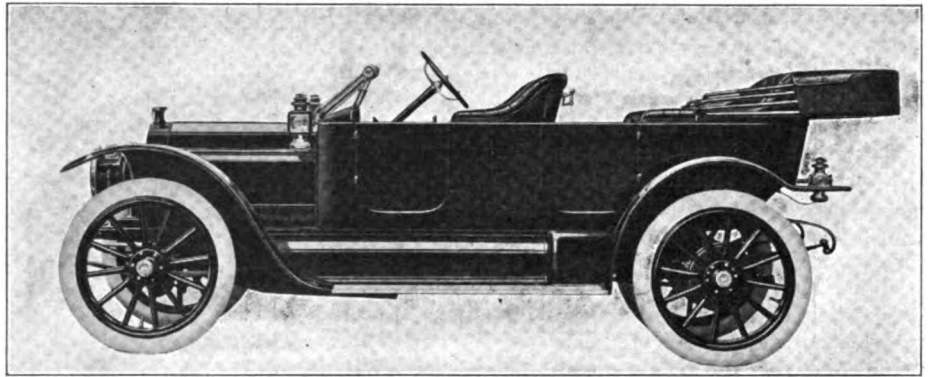
With no less than 11 different styles of car in its line, of which the 38 horsepower "Cross Country" Rambler at \$1,650 is the flag bearer, the Thomas B. Jeffery Co., of Kenosha, Wis., is disclosing for 1912 not only a great increase in the number of its styles, but a power and dimensional increase in the cars themselves over the nearest corresponding styles that preceded them. Names instead of numbers now designate the various Rambler models, which are divided into two general classes as to power, there being five models of 38 horsepower and six of 50 horsepower, with four cylinders in each case.



RAMBLER "KNICKERBOCKER," DOUBLE LIMOUSINE MODEL

In general design the chassis construction, in both the 38 and the 50 horsepower types, retains the features characteristic of the 1911 Ramblers, including the internal expanding clutch adopted in 1911. The engine is much the same, except that the positive feed lubricator, which previously was mounted on the left side of the chassis beside the flywheel, now is on the left side of the engine, between and in line with the water pump and the Bosch magneto, all three taking their drive from the one through-line of shaft. The mixture lead from the carburettor to the inlet manifold no longer loops over the top of the engine. Cylinders are cast separately, as before, and the 38 horsepower dimensions are $4\frac{1}{2} \times 4\frac{1}{2}$, while those of the 50 horsepower are $5 \times 5\frac{1}{2}$ inches. Improvements have been made in the linkage from the selective change gear lever to the transmission case, so that the pull on the shifter-arm rods is more direct, without side strain. The radiator is of new design and finish, being higher and mounted by a

graceful filler cap. Strong gusset plate construction is used at the rear of the frame. All models have semi-floating rear axle with roller bearings, the drive axle



RAMBLER 38 H. P. "CROSS COUNTRY" MODEL AT \$1,650

shafts and gears being forged integral. Brakes are internal and external on rear wheel drums.

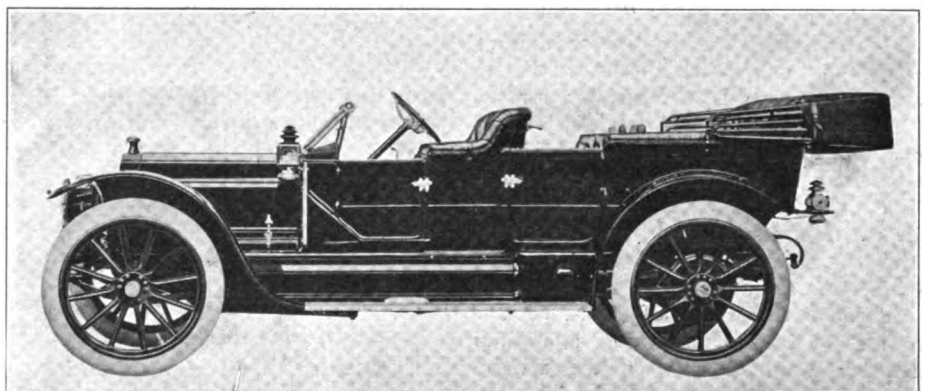
the big cars they are 40 inches in diameter. There is a cowl over the dash, double curved front fenders, new hubs, and rich, darkened finish for the polished wood

parts. Every model is finished in nickel, and the prevailing body color is English purple lake, a rare shade of deep maroon.

The unique Rambler spare wheel system is still applicable to all models, but the spare wheel itself no longer has a place on the running board as part of the regular equipment. The spare or demountable wheel which may be used to replace any one of the four regular wheels, is now offered as an extra accessory, for which the charge without tire is \$30. Furthermore, a place for it has been found at the back of the car, instead of on the right hand running board. Should a tire become punctured or a wheel broken, it is easy to take off the wheel and replace it with the demountable wheel. "Ever-Ready" automatic engine self starters are fitted to any of the models at \$175 extra.

Considering the various models individually, the "Cross Country" model, which enjoys not only first place in the 38 horsepower group but in the entire line, by reason of its being designed to meet the largest popular general requirements as to price and capacity, is a five passenger tour-

Wheelbase dimensions have been lengthened so that in the 38 horsepower and two of the 50 horsepower cars it is now 120



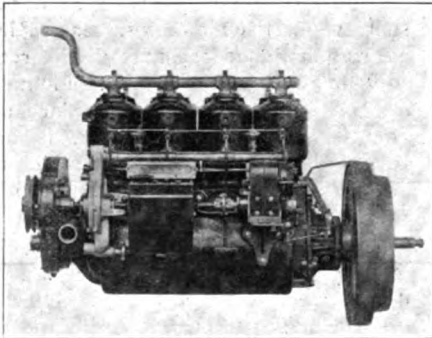
"MORaine" MODEL RAMBLER—50 H. P., 7 PASSENGER

inches, and in the remaining four 50 horsepower models it is 128 inches. Large wheels are used, those for the smaller cars being 36 inches, while for all but two of

ing car possessing the same quality in material and workmanship that characterized the higher priced Rambler of the past few years. It is the first four cylinder

Rambler to be offered at so low a price as \$1,650. The front axle is set well forward, giving 120 inches wheelbase, and the body is of the torpedo type. The wheels are 36 inches in diameter. The frame is dropped to make it low, and the spring suspension is arranged for the same result, semi-elliptics being used in the front and three-quarter elliptics in the rear. Plenty of room has been provided in the body, with 27 inches from the front seat to the dash and 30 inches from seat to seat in the tonneau. There are no outside door latches. The enclosed front is ventilated. A new feature is the drop forged I-beam axle with adjustable roller bearings. The internal expanding clutch, as in all the models, has double adjustment, one for easy starting and one for full engagement. The equipment includes gas headlights with gas tank, oil side and tail lamps, tonneau hinged robe rail, adjustable foot rest and complete tool outfit.

The Rambler "Suburban" is a four passenger car with the same chassis as the

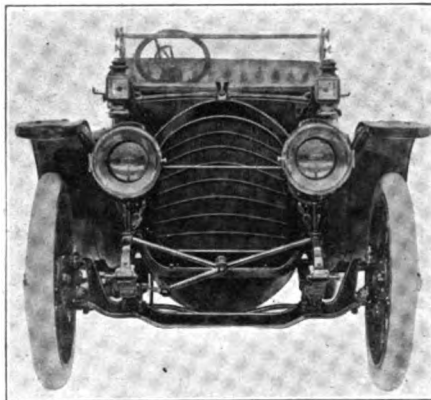


LEFT SIDE OF RAMBLER ENGINE.

"Cross Country," but affording a more compact body for those who prefer this style. It also lists at \$1,650. A third body variation of the same chassis is the "Roadster" for two passengers, which sells at \$1,600. It is equipped with round visible gasoline tank and a touring trunk, both placed on the platform back of the enclosed two passenger body. With the trunk are two suit cases for city use or country touring. By minor modifications the 38 horsepower chassis is also adapted for the "Gotham" and the "Sedan" models, both of which are closed cars. The "Gotham" is a five passenger limousine with cap sides, selling for \$2,750. All of the windows are made to drop, except those over the front seat arms and the rear window. Two folding cab seats are attached to the front end of the enclosed portion. Bedford cord is used for the interior trimming, and pillar lamps are mounted between the driver's seat and the rear compartment. The latter has a toilet case, speaking tube, and electric dome light, together with silk curtains on all the windows. The "Sedan" model, which is priced at \$2,500, has a big coupe or limousine body that includes driver's seat and all, with door on the left side, at the front. All the windows, ex-

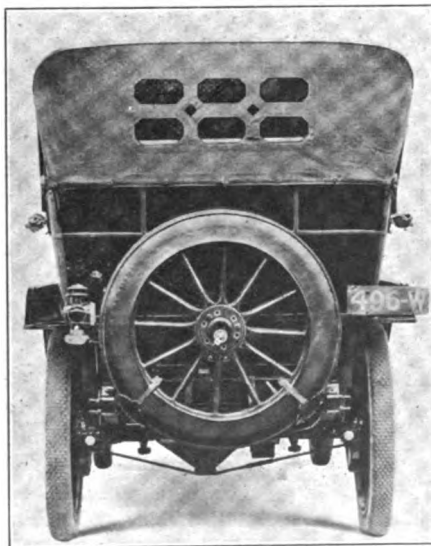
cept that at the rear, can be dropped in the frame, the window plate glass being set in mahogany sash. The interior trim and fittings resemble those in the "Gotham."

In the 50 horsepower division the six



THE 1912 RAMBLER FRONT EFFECT

models, respectively, are the "Country Club," "Moraine," "Valkyrie," "Metropolitan," "Greyhound" and "Knickerbocker." The "Moraine" is a seven passenger touring car with 40-inch wheels and 128-inch wheelbase, selling at \$2,500, and representing in many respects a continuation of the 1911 seven passenger 45 horsepower car, though with many improvements. The Bosch dual ignition system is used, with 6-80 accumulator. The front axle is tubular, with internal reinforcement. Springs are of the semi-elliptic pattern in front and seven-eighths elliptic in the rear. In general outline the five passenger "Country Club" model and the four passenger "Valkyrie," both selling at \$2,250, are the same as the seven passenger car, having the same power equipment and appearance, but reduced in body size, wheelbase and

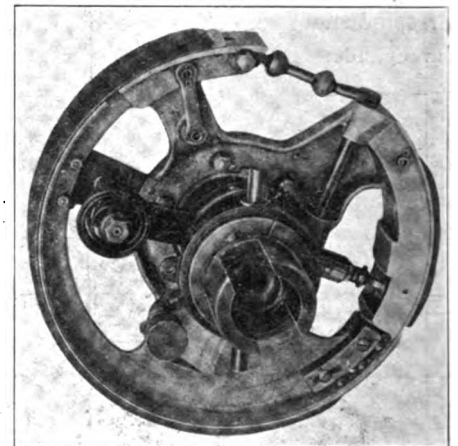


WHERE THE SPARE WHEEL GOES

wheels. The wheelbase is made 120 inches and the wheels 36 inches. Two models of the 50 horsepower in torpedo body are supplied in the "Metropolitan" and the

"Greyhound," the former seating seven passengers and the latter six. Both models sell for \$2,850, and have 40-inch wheels with 128-inch wheelbase. In these models the front axle is I-beam instead of tubular, and the rear springs are three-quarter elliptic. While the "Metropolitan" seven passenger car has the regular English purple lake finish, with Brewster green as an option, the six passenger "Greyhound" is true to its name and has Rambler grey finish, striped with white. It is hung low, and while narrower than the "Metropolitan," has plenty of leg room.

As the most elaborate and expensive car in the line, the seven passenger, 50 horsepower "Knickerbocker" is built accordingly. It is of the double or Berlin limousine type. The front compartment, surrounding the driver's seat, is leather trimmed, while the rear compartment is upholstered



RAMBLER EXPANDING CLUTCH

in Bedford cord. The finish is deep maroon, Brewster green or blue, with trimmings to match. Big, 5-inch tires are used on the 37-inch wheels. Side pillar lamps are mounted on the sides of the body between the driver's and the rear compartment. In the front compartment there are electric lamps in each quarter. Among the luxuries and refinements are arm rests at the side of each seat, megaphone speaking tube with buzzer, flower vase and bracket, umbrella holder, silk hat rack, whisk broom holder, toilet case and clock.

Number Plates and Leaky Radiators.

Though the practice of attaching the bracket which holds the front license plate to the radiator cap is quite general and in the majority of cases is harmless, it may become the cause of a leaky radiator. The plates are not as light as they appear to be and the continual vibration occasioned by traveling over rough roads has been known to cause the cap to part from the radiator proper. A much better manner of attaching the front plate is to wire it to the cross rod which generally is fitted to maintain the headlights in position. Barring this there is nothing in the law which forbids the plate being wired to the axle.

Knight's Own Defense of the Sleeve-Valve Engine

In the course of the several lectures which he has delivered before various engineering bodies before his return to his home in Coventry, England, on the 4th inst., Charles Y. Knight, inventor of the sleeve valve motor which bears his name, has cleared up a number of points in reference to his motor and its working which to many minds have been more or less vague. Uncommon interest attaches to Knight's lectures, inasmuch as never before has he appeared in public to explain or defend his invention; his American press agent has been quite active during the past few years, but he has dealt chiefly with glittering generalities, and it remained for Knight himself to go below the surface.

Prefacing his remarks with the truism to the effect that "any mechanism which does not possess merits sufficiently pronounced to warrant its features being described in a non-technical manner can possess few tangible advantages," and with the help of a working model of a Stearns-Knight engine, Knight successfully lays several ghosts which have existed in some minds regarding the practicability and reliability of his motor.

After a lengthy introductory, in which he tells of the avidity with which foreign manufacturers have grasped the sleeve valve motor, he says that though its popularity has been proven and is increasing, it never will entirely supplant the poppet valve type.

"I do not hold that the poppet valve engine is going to the eternal bow-wows," he says, "or that the sleeve valve engine is going to chase every other type of explosion motor off the earth. I am simply expressing the belief that the time is ripe for the introduction of new blood into the internal combustion field; that a new type has made its appearance which has commanded a sufficient following to compel the attention of the industry; that almost without exception manufacturers of automobiles are either themselves experimenting with some new type or are upon the lookout for something different from the poppet valve, with features of merit which will meet with the approval of the public and its appetite for the new article." At all times he refers to his invention as a "sleeve valve motor," and states that because of the failure of early slide valve engines, he at first vigorously opposed the use of the latter term as applied to his conception.

"Since the advent of the sleeve valve motor in Europe," he continues, "no fewer than 250 patents have been issued by England, France, Germany and Austria, covering suggestions for the improvement of the

sleeve valve engine. I characterize these as suggestions because I have not included in this list a single instance wherein the design did not contemplate the employment of each and every one of my original elements combined, and constructed substantially the same as my original sleeve valve design. In addition to these there has cropped out also innumerable suggestions for flat slide valves, rotary posted valves, flat disk valves, round ring valves, rotary sleeve valves and various piston valves. The inventors of these motors seem, in few cases, to have gone further than registering their ideas for priority purposes with the patent office.

"The outstanding feature of the motor, as a matter of course, is the substitution of sleeve valves for poppet valves. This innovation in the explosion motor is wholly original, to the extent of my knowledge and belief, with myself. It is not so much the novelty of the valves and their elimination of noise which have contributed to the success of the motor, because admittedly other motors with other valves have been produced which were fairly quiet. Unfortunately for the other constructions, as far as I am advised, the form of the valves is such that, instead of contributing to further efficiency of the motor, they are to the contrary, employed in spite of their disadvantages, because of their merits.

"The failure of former devices has been almost wholly due, as suggested by Prof. Hutton, of Columbia University, in his work 'The Gas Engine,' published in 1902, to the impossibility or impracticability of lubricating the highly heated sliding surfaces which were employed in those types of sliding valves. Now a failure to lubricate may result from a number of causes no one of which, if taken alone, might render the operation impractical. The disposition, functioning and design of the sleeve valve motor differs from all former types of the slide valves in the fact that it encircles the piston and forms the outer walls of the combustion chamber. Not only are the sliding surfaces subjected to the intense heat of the exposure and the blow torch action of the exhaust, but the extreme pressure as well. Failure of lubrication might be brought about by either of these causes, but is almost certain to result from a combination of both. The old type slide valve was forced by the intense explosion hard down upon its seat and was necessarily moved under the same intense heat and pressure.

"The most difficult surface in the world to lubricate is a sliding surface subjected to intense heat combined with high pres-

sure. Two flat surfaces, if working together, resist to an enormous extent the squeezing of the oil from between them when conditions are such that the viscosity of the oil may be preserved to a reasonable extent, but increase this pressure, heat the surfaces to a point where the oil thins up like water and it soon finds its way to the outer edges as a result of the reciprocating movements essential to the functioning of the valves. . . .

"In the concentric sleeve valve these conditions are almost entirely eliminated. The fact of the sleeve valve wholly encircling the piston and forming the side walls of the explosion chamber prevents these valve seats being subjected to high pressures, as the explosions against the walls of the valve are entirely balanced, just the same as you are perfectly safe in embracing, without fear of harm, the breech of a twelve-inch gun when the explosive pressure of tons to the square inch is generated inside—a pressure which, if exerted in a particular manner, would be sufficient to blow several regiments to kingdom come. So is the seat of the sleeve valve immune from injury from pressure at the time of the explosion of the internal charge. The cylindrical walls, as a result of their form, are not in the least affected as to position by the explosion and, as in the case of the implement of war alluded to, the effects of the explosion are directed to useful work instead of being expended by producing worse than useless friction through the pressing together of two surfaces which lack the form to balance themselves against pressure. . . .

"Now, the first criticism that was directed against this construction in the early days, after the critic had slightly recovered from his spasm of fear that the sleeves would seize either between themselves or with the cylinder, was that the ports in the sleeve valves would burn. It might suffice to state that they do not, but the cause of their immunity from damage from heat is easily explainable. The ports in the inner sleeve are sealed through the lapping of their openings with a wide ring, styled the junk ring. This ring is similar in construction to the ordinary piston ring only much wider in order to seal the ports. Underneath the junk ring there is placed a second or spring ring for the purpose of insuring perfect contact with the interior of the sleeve. Both rings, needless to say, are split like a piston ring. Above them are two or three ordinary piston rings to bar the escape of any gases which might pass the break in the junk ring.

"These rings are all set in the inwardly

projecting water-cooled head in which is located the spark-plug. The water reaches within a portion of an inch of the bottom of the inside of the head. The cylinder surrounding the sleeves and head is also water-jacketed, so that the sleeve valve reciprocates between water-cooled walls and the sleeve junk ring and ports are cooled upon both sides.

"At the time of the explosion the ports in the inner sleeve are central with the wide junk ring. Hence at the time of the development of the greatest heat until, in fact, the temperature in the explosion chamber is reduced to at least half of the maximum, the ports through which the exhaust gases pass are not exposed to heat at all. Therefore their lips and surfaces are not only immune from the fierce heat of the violent part of the explosion, but the entire section of the sleeve carrying them is pushed up after every explosion and rubbed against the water-cooled surfaces which serve to prevent the accumulation of heat at this vital point. None of the valve mechanism is ever brought in contact with the heat, as is the case with poppet valves, whose heads are always subjected to the highest temperature generated in the explosion chamber, which reaches almost the melting point of steel."

Turning to the question of lubrication, Knight says that the critic's conclusions to the effect that the sleeves must seize because in his estimation it is impossible to introduce oil between the sleeves and the cylinder walls, are quite natural unless his attention is called to the facts.

"He takes it for granted," Knight continues, "that compression is held between the two sleeves; that they work like the ordinary slide valve, and he knows how difficult it is to prevent the leakage of gases at pressures ranging from 200 to 400 pounds per square inch, particularly when the oil film becomes worked out from between their surfaces. It surprises him to learn that the clearance between the sleeves and cylinder are not of great importance. He has overlooked the fact previously stated that the real valve is in the construction contained in the head and is never exposed to the pressure or the heat of the explosion, and is kept upon its seat not by the pressure of the explosion, but by the spring of the rings similar to the ordinary piston ring. In short, if rings are a success on the piston they are equally practicable in this position on the head.

"The valving of a four-cycle motor is much different from the functioning of any other mechanism of the pump order. Coincident with the pressure and explosion stroke, the cylinder must be sealed in a manner which admits of no defect. The contact between the valve and its seat must be perfect. This function is performed by the wide range engaging the interior of the inner sleeve.

"During the period of the exhaust and scavenging and aspiration strokes, a differ-

ent condition prevails. The pressure in the cylinder has dropped to at least 40 pounds to the square inch before the lower lip of the exhaust port in the inner sleeve slides over the bottom of the wide ring upon its downward or exhaust stroke. The intake and exhaust ports are so arranged in this inner sleeve that the latter leads the former by about one-sixteenth of an inch. This gives the exhaust gases an opportunity to escape sufficiently to reduce the pressure in the explosion chamber almost to atmospheric before the lower lip of the intake port is exposed to their heat. This means that the danger of these gases blowing out between the lips of the inner and outer sleeve on the intake side is prevented, the liberal clearance between the two sleeves required for lubrication not furnishing sufficient aperture to cause a leak of exhaust into the intake ports.

"Upon the aspiration stroke, there is never in excess of a few pounds vacuum developed in the cylinder as a result of the suction with closed throttling. Therefore the necessity for a very close fit between the upper lip of the outer sleeve and the lower lip of the water-cooled cylinder which serves to seal the exhaust port during this aspiration stroke is not essential.

"If necessary clearances as great as between the piston and cylinder can be employed between the two sleeves and between the outer sleeve and the water-cooled cylinder wall. But the critic will say, even with such a clearance, the wall surfaces are long and it is a question as to whether the lubricant will find its way to the extreme points. Here again," he says, "is a criticism born of a lack of comprehension of the many features of the motor," and he proceeds to explain:

"There is always more or less of a vacuum at the intake ports as a result of the necessity of placing a suction upon the spray nozzle of the carburetter. These ports extend about one-third of the way around the cylinder and sleeves. The lower ends of the sleeves are constantly immersed in the spray of oil which exists in the base. The oil which naturally clings to the lower ends of the sleeves when they reciprocate in this base is slowly but surely drawn upwards by this suction of the pistons which draw in the gas, as the clearances between the two sleeves and the other sleeve and the cylinder, whatever they are, open into the intake pipe through the intake ports just the same as the top of a water pump suction pipe opens into the valve and suction chamber for the purpose of conducting the desired liquid to the required point.

"That this suction does draw the oil from the base between the sleeves and cylinders is most easily demonstrated by placing a motor upon the block, driving it from power through a belt and placing an obstruction over the intake port, creating a vacuum around the sleeves. Inside of a minute or two remove this obstruction or

cover and a small pool of oil will be observed to have accumulated therein. But if there is no vacuum around these intake ports they will remain free from oil no matter what length of time the motor may be turned over with a belt. This oil, drawn from the base between these surfaces, must necessarily distribute itself between the faces of the sleeves, as a result of capillary attraction. In fact, instead of being difficult to lubricate, these sleeves are first to attract any oil that may be flying about, and in cases where bearings have burned out and the piston seizes the sleeve surfaces were found to have been bountifully lubricated.

"Taking the subject the other way about, why should these sleeves seize between their surfaces? Our critic may answer that when the motor is in operation this oil may be squeezed out from between the surfaces through the lateral pressure of the piston at its greatest angle. But suppose we analyze these pressures and see how serious they are. Taking as an example the $4\frac{7}{8} \times 5\frac{1}{8}$ size, the pressures distributed over these sleeve surfaces amount, for a fraction of the sleeve, to about 20 pounds to the inch. At the same time the piston is working under about 50 or 60 pounds to the inch, in proportion to the length of its skirt.

"Now how do these pressures compare with those employed upon rotative bearings? While these pressures are extreme, it is a fact that the load upon the upper metal surfaces of the connecting rod big ends often approaches close to 1,000 pounds to the square inch of effective surface. And further, the heat under which these big ends work in the base is probably at times greater than that which exists between the sleeves, as they are pressed alternately from one side to the other of the water-cooled cylinder, and an opportunity given for the heat to be conducted to the water jacket."

Regarding the question of efficient cooling, Knight says that this is most effectively answered by the fact that there are over 8,000 motors in use and that in no case has one given trouble. "But here again I have no desire to dodge the issue," he adds. "The critic will raise the point that between the piston and water-cooled cylinder wall of this motor are four intervening films of oil as against one in the poppet valve type, and that oil, even in these very films, is a most inefficient conductor of heat. Here again are peculiar conditions of which he has not taken account exist. Were it a fact that these sleeves remain stationary, while under heat, I would concede the correctness of the theory. What do you do with a quantity of liquid in a vessel when you desire to drive the heat from it? Naturally you stir it in order that gradually each particle should be brought either into contact with the open air or against the sides of the walls which are so exposed. A vessel of hot fat left undisturbed

will congeal at the edges of the vessel and remain liquid at the center.

"So with the oil films between the sleeves. If they are left undisturbed they will retain their heat to a greater or less extent. But if the particles are rolled and tumbled about by being rubbed between the sleeves surfaces there is no chance for any heat remaining away from contact with metal slides. Each reciprocation changes the position of these heat particles and serves to remove them from local heat spots which otherwise might cause a section of the surface to become too hot for proper lubrication. The average person may readily understand that the transfer of heat from one surface to another is tremendously facilitated through rubbing them together."

Discussing the question of wear on the sleeves he maintains that owing to the fact that they are perfectly lubricated and the pressure on them is only about one-third of that to which the piston is subjected, it cannot be other than minimum wear. "The sleeves travel from one inch to one and one-eighth of an inch, while the piston is traveling once up and once down its stroke," he explains. "Therefore if the stroke of the piston is five inches the piston is traveling about ten inches to the sleeves' one. Logically it would appear that the wear between the sleeves should be one-tenth of that between the faster traveling piston and inner sleeve. But the piston is equipped with strong expanding rings and reciprocates against a surface which is exposed to the highest temperature of the burning gases. Its lubrication can never be so good as between the sleeves and cylinders.

"Actually there is no appreciable wear between the surface of the sleeves where they engage each other and the water-jacket cylinders. I am satisfied that under normal conditions one of these sleeves and the water-cooled cylinders would not deteriorate a particle through a road use of a million of miles. We have several instances where they have served to value a motor which has covered more than 100,000 miles with no evidence of wear after they had smoothed their surfaces driving the first few hundred miles.

"The interior of the inner sleeve where the rings and the piston work, of course, will show wear just the same as the cylinder of the poppet valve motor in which the piston works. But instead of finding it necessary to replace an entire outer cylinder, as in case with the poppet valve type, the replacement of the inner sleeve only is required."

The power required to drive the sleeves, he says, is surprisingly small, and he continues: "In a six-cylinder, 77-horsepower Daimler motor this loss of energy was measured through the introduction of a differential mechanism between the eccentric shaft end and the chain sprocket which drove it. Power recording apparatus was

attached and it was found that when the motor was developing 75 horsepower at 1,200 revolutions a minute upon the brake two horsepower was absorbed in driving the 12 five-inch sleeves. But for the necessity of driving these sleeves the motor would have developed 77 instead of 75 horsepower, not a very serious loss of power."

Comparing this absorption of power with that required to operate poppet valves, Knight says: "The springs necessary to seat the poppet valves of a motor developing the power given off from a $4\frac{7}{8} \times 5\frac{1}{2}$ sleeve valve type require at least 100 pounds tension. Not only this, but on the exhaust side the cam shaft is compelled to lift against an explosion pressure which amounts to at least 150 pounds upon the valve head at the end of the firing stroke, when the pressure of the explosion is somewhere about 50 pounds to the inch when the exhaust valve should open. Thus we will see that fully 250 pounds pressure is required to lift the exhaust and 150 to raise the intake valves at every second revolution.

"The weight of the inner sleeve of the $4\frac{7}{8} \times 5\frac{1}{2}$ size Knight engine is nine pounds; of the outer sleeve eight pounds. At the greatest power, counting a coefficient of one as the ratio of friction to pressure, 90 pounds are required to slide these sleeve valves against each other and the pressure of the piston. The inertia of the inner sleeve, when the motor is turning 1,200 revolutions per minute, is something like 60 pounds, while that of the outer sleeve is less than 50. Taking the inner sleeve as the one subject to the greatest stresses because of its greater weight, there is 96 pounds of weight to raise; 90 pounds of friction to overcome at one point only; 60 pounds of inertia to counteract at the outer and inner ends of the stroke, a total of 160 pounds against 250, in case of the poppet valve.

"Being positively connected, the silence of the sleeve valve is not affected by increase of load or speed, and is as quiet at 50 as at 15 miles an hour. But the pressure of the exhaust upon the poppet valve rises with the increase of power, and as the speed becomes high the valve springs fail to cause the valve tappets to hug the profile of the cams and a valve clatter of increasing intensity is the result."

In connection with the functioning of the sleeves, Knight explains that the piston and sleeves start downward simultaneously and move together until the piston has reached the bottom of its stroke and the pressure in the cylinder has been practically reduced to atmospheric. "Now it will be realized," he points out, "that instead of the sleeve requiring power from the eccentric shaft to drive it downward, the friction of the piston against its walls would have done so had no other means been provided, but, of course, it would not have stopped at the right point. We have

the maximum side pressure of the piston during this explosion stroke.

"While the piston returns the sleeve continues downward and the two elements are driven by their mechanism in opposite directions. But upon this stroke there is no lateral pressure upon the sleeve because the piston is only dispelling the exhaust gases. Hence there is no resistance to the travel of the sleeve. When the piston reaches the top of the sleeve has reached the bottom of its stroke, and again they start moving in opposite directions. But as this is the suction stroke again here is no friction of consequence, the piston having no pressure upon it. The piston, having drawn in the gases, starts upon its return stroke and the sleeve continues upward. Here there is the lateral pressure of the piston which meets the resistance of the compressed gases and the sleeves are again under pressure. But here again the pressure instead of being of disadvantage is an advantage, as it aids them in their upward movement.

"Now remains another objection to meet with regard to the substitution of sleeve valves for poppet valves," he continues. "It is urged that if the poppet valves stick no damage is done, but if the sleeve valves are injured as a result of neglect, or lack of lubrication, the matter is serious.

"But to what extent is this serious?" he questions, and answers himself: "Several years ago, before I had the experience I later acquired with these motors, I listened to this argument and provided a scheme for answering and insuring absolutely the safety of these sleeves against damage from seizure. The device was as simple as the alphabet itself. It merely consisted of a weak point in the outer sleeve connecting rod so inserted as to give way well before the power required to pull the sleeve should reach a point where the lug might be broken off. The way these lugs are designed to-day requires over 6,000 pounds pressure to fracture them, and each and every one of our licensees informed me that they saw no necessity in practice for the adoption of this precaution; it was never attached to a single motor."

Light on Rats and Rubber Question.

Notwithstanding ostensibly correct information to the contrary, it has been fairly well established that rats and mice have no taste for rubber articles. The question is one which has been much mooted, particularly among those who store spare tires in more or less rat infected public or private garages. Additional evidence in the experience of a vermin exterminator, who also is a motorist of many years' standing, should go far toward deciding the issue. "During 20 years' experience," he says, "I have never known an instance of a rubber tire being damaged by rodents, though car upholstery, hoods, etc., are not nearly so free from the attentions of such vermin."

EVIDENCE OF EVERITT EXPANSION

Enlargement of Factory Being Prosecuted Even by Electric Light—Capacity to Be Forty Cars Daily.

That the Metzger Motor Car Co., of Detroit, has expanded and is expanded is evidenced by the increasing number of Everitt cars which are in use on the roads. Naturally they are widely scattered, and perhaps the best concrete evidence of the expansion is the accompanying illustration of the Metzger factory as it will appear when the additions now in course of erection are completed, and they are being

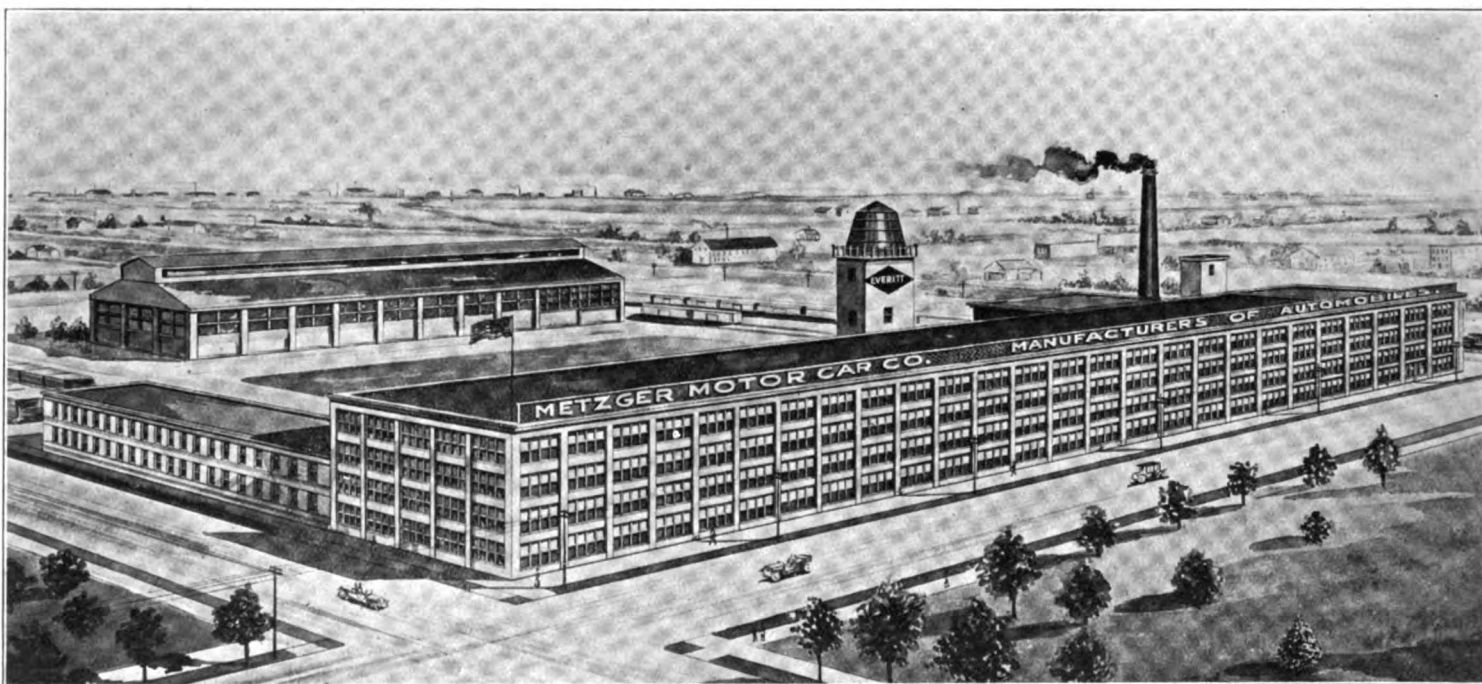
been the custom of the Motorists' Union and the Automobile Association—as well as that of nearly every representative automobile association in other countries—to give warning of so-called speed-traps, established by the police with the express purpose of catching drivers who exceed the legal speed limit by even the narrowest margin. These warnings never have been considered illegal, and the publishers of them never have been hauled before a justice for the "heinous crime" committed thereby. If, however, a private chauffeur undertakes to warn other automobile drivers of the existence of a speed trap, it is called "interference with officers of the law in the performance of their duty."

The case which called forth this judicial

CAUSES OF LUBRICATION FAILURE

Scientist Undertakes to Name Them Categorically and Contrasts Oiling Systems—Outlines the Ideal Arrangement.

Lubrication, particularly as applied to automobile practice, is a subject which is insufficiently understood by the average motorist, despite the frequency with which it has been publicly discussed. Ignorance of the way in which the lubrication of the car should be carried out is a far more frequent cause of difficulty than faulty design. "To the ordinary motorist owning a high-class or well-designed car, the design of the



ENLARGED METZGER FACTORY AS IT WILL APPEAR WHEN ADDITIONS NOW UNDER WAY ARE COMPLETED

rushed to completion by men who are working night and day, hundreds of big arc lights furnishing the illumination after sunset. When all is done the plant will have a daily capacity of 40 cars.

The larger of the two additions is four stories high, 550 feet long and 68 feet wide. It is planned to use this structure for the various operations of assembling, finishing, etc., using the original factory building for the heavier manufacturing operations, where the complete equipment of heavy machinery, with machine tools and jigs and fixtures of all kinds is already in place and now in operation. A second recent addition to the Metzger plant, which already is in operation, is the new heat-treating plant, a huge brick structure, covering a floor space of 6,000 square feet.

Illegal to Prevent Speed Violation.

There appears to be justice of two kinds in Great Britain, as far as automobiles are concerned, at least. For some time it has

decision occurred last month, and it has caused a veritable storm of protest to be launched at the head of the "offending" magistrate. The evidence presented brought out that two policemen were working a speed trap over a measured course, and that a chauffeur who observed them stopped his car outside the measured limits and warned all approaching motorists of the existence of the trap. The police officers ordered the chauffeur on his way, but he persisted in his work, notifying about thirty motorists. Finally the officers became angry and arrested him for interfering with their duty. The magistrate before whom he was brought fined him \$40, with the alternative of going to prison for two months.

In America, where such warnings frequently are given, it is usually considered not so much an obstruction to the carrying out of justice as a warning to motorists that assists in preventing the violation of the law.

bearings must be taken for granted, but the nature and method of application of the lubricant is often under his control," remarks R. W. A. Brewer, the well-known British scientist, in a helpful consideration of the subject. "The failure of any lubricating system with the consequent result of seized or fired bearings," he goes on to explain, "is generally due to one of the following causes:

"Insufficient supply of the lubricant, due, in a forced system, either to the choking up of an oilway or the failure of the oil stream to reach those bearings which are furthest remote from the pump. This failure may be due to a too free means of efflux for the oil from those bearings which are situated nearest to the pump and generally at points of maximum pressure on the oil line.

"Loss of nature in the oil itself, or a reduction of its viscosity caused either by excessive heating or by inherent defects in the oil itself; this can only be guarded

against by care in the choice of the oil, but the viscosity of the lubricant when cold is not by any means an indication of this same property when the oil is heated up to its working temperature.

"Unsuitably placed admission devices for the oil supply, as, for instance, the oil holes entering the bearings at points of high pressure or oil grooves cut in such positions that they do not tend to distribute the oil properly over the loaded surface of the bearing itself. There is a considerable diversity of opinion as to the best position and shape of oil grooves upon a bearing, and as the oil generally enters the bearing at some point near its center these grooves should be so arranged that the oil is distributed across a region of low pressure. Preferably several such grooves should be so cut that the oil is distributed over an appreciable portion of the circumference as well, so that as the point of minimum pressure moves around the bearing under the variation of working conditions an adequate oil supply may be insured at the point of minimum pressure.

"Transverse grooves of this kind should be connected by a circumferential groove which should be staggered to such an extent that local wear is not set up on the shaft journal. When forced lubrication is employed the oil grooves are necessarily much more simple than when a purely splash system is relied upon, and, in addition, the load, which can be carried by a bearing served with forced lubrication, can be much higher than in the other system per unit of area.

"Overloading.—The load which a bearing will carry depends upon several factors, the principal of which are the time of duration of pressure upon it, the facilities for cooling, the method of oil supply, the materials in contact, and the nature of the lubricant.

"When a bearing is continuously loaded, as in a crankshaft bearing, the intensity of the load must be less than when intermittent loading only is borne, because the time question is an important consideration. It is obvious that if a film of oil be interposed between two metallic surfaces and a pressure comes upon those surfaces, the oil will be squeezed out, if the intensity of pressure be great enough. Naturally a certain amount of time elapses before the whole of the oil is extruded, and if the time interval be short enough, a load which would be fatal when continuously applied could be easily carried when its duration is only intermittent and for very short periods. For this reason such bearings as are fitted at the ends of connecting rods will carry safely a far higher load per unit area than the continuously loaded crankshaft bearings.

"In the former case the oil has not time to squeeze out entirely from between the surfaces in contact during the time of application of the load. . . . Oils which are very viscous when cold, rapidly lose their

viscosity when heated to 212 degrees Fahr., which is, however, a higher temperature than should be prevalent in the base chamber of an engine. Many engines work at temperatures in the neighborhood of 180 to 200 degrees Fahr. . . .

"We see, therefore, that the oiling arrangements of a motor car should be such, and the pipes and passages of sufficient diameter, as to allow a viscous oil to pass when the engine and the oil are cold. If a forced feed lubrication system be used we also see that when the engine is heated up an enormously greater quantity of oil will travel through the same sized pipes, and at the same time a hot oil will much more easily squeeze out from between two surfaces in contact than would the same oil at a lower temperature.

"Too much care cannot be taken to exclude foreign matter from an oiling system, and a sufficient sump should always be placed, so that any grit or worn particles of material can fall into this sump in such a manner that they will not become dislodged by the jolting of a car, and again enter the oil circulation. This applies also to the gear box and differential casing, and, bearing this in mind, it is generally advisable to use a lubricant of such viscosity that solid matter will not be held in suspension in the lubricant itself, but will promptly fall to the bottom of the sump.

"In some cars, owing to defective design of the bearings themselves, the user of such a car is unable to employ a lubricant which will comply with these conditions, as when a thin oil is introduced into the gear box or the axle, it gives trouble by creeping through the bearings and dropping on to the road or the brake drums. . . .

"When the gear box bearings are properly designed oil is by far the best lubricant for both shafts and teeth, as it is thrown up in a continual stream and always goes where it is required. On the other hand, with the grease lubricated box, the gear teeth cut a passage through the grease and thereafter fare very badly with regard to an adequate supply of further lubricant. Grease also has a nasty habit of retaining any particles of grit or chipped metal in suspension, which is continually churned round and does further damage to the working parts.

"Impurities in the oil are sometimes a source of trouble to the motorist. These may consist of water, acids, or small pieces of fluff, which are sometimes passed to the oil from the refineries. Fluff is seldom found in canned oils, but where oil is handled in barrels or drums it is sometimes met with and can only be accounted for through carelessness with the packages. Sometimes a drum may be left with the stopper out, and a piece of waste inserted; this is a very dangerous practice, as the waste is apt to enter the drum to be eventually encountered in the oil strainer of the engine.

"Oil in the correct place is what is aimed at in an efficient system of lubrication, but this ideal is sometimes attended with the evil results of distributing the oil in other places as well. Allusion has already been made to oil throwing into the cylinders, and creeping on to the brake drums, and the latter fault in particular, in addition to causing loss of lubricant resulting in a dirty car, is also a matter of considerable danger to the occupants of the car itself.

"Greasy brakes can never be relied upon, and although a certain amount of oil is often desirable on the brake drums of many cars, a continuous excess of lubricant makes the brakes erratic and useless at critical moments.

"Many motorists are unaware of the considerable loss of power which occurs in some types of unlubricated brake drums when the brake shoes hang upon the drums through insufficient disengagement. Those who wish to get the best results from their cars should pay some attention to the lubrication of the joints of the brake shoes and their actuating mechanism, as this detail is often overlooked, and in many cases insufficient provision is made for the introduction of the necessary lubricant. . . .

"It is much cheaper to buy oil than to pay heavy repair bills, and one does not suffer the inconvenience of continually having the car laid up when careful attention is paid to all the details which require lubrication, both by hand and by pump.

"Many makers pride themselves upon the small consumption of lubricating oil that their engines require, but it cannot be supposed that a certain quantity of oil, continuously used over and over again for lubricating parts which run at high temperatures, can maintain its lubricating properties for a great length of time. In gas engine practice one does not usually care to employ an oil which has been used for cylinder lubrication a second time for the same purpose, although it may do quite well for shaft bearings."

Motorists' Legal Adviser for Pocket Use.

"Road Rules and the Law of Automobiles" is the title of a neat and handy little booklet compiled by Neal Down Becker, a member of the New York Bar, and published by Erle W. Whitfield, of New York. In nine concise chapters it covers the general requirements of New York, New Jersey, Connecticut and Massachusetts, as to licenses and equipment permitted or demanded; the important points in the automobile laws of these States; the procedure at arrests and the matter of obtaining bail, etc., and the systems of automobile insurance. In appendix form it affords a resume of the existing automobile laws of all the States, particularly as to the license requirements and the "non-residents" provisions. A section also is devoted to the speed and equipment regulations in the several States of the Union and the Dominion of Canada.

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Rambler dealers have for years been clamoring for a car of Rambler quality to sell at a popular price. They have long maintained the superior fitness of the Rambler organization to produce such a car.

The company, after purposely delaying taking this step until the factory organization had been perfected, now announces the Rambler Cross Country, a 38 horsepower, five-passenger touring car at \$1,650.

In building this model Rambler, quality in material and workmanship has been maintained throughout. The richness of appearance which sets the Rambler apart from lower-priced cars characterizes this as all other models.

The Rambler Cross Country will have an unprecedented sale, if advance orders may be taken as an indication. Come to the factory and see these new models which are now on exhibition, but wire or write immediately for territorial reservations.



995,583. Tire Saver. Le Ray Willour, Ashland, Ohio, assignor to The Ashland Manufacturing Company, Ashland, Ohio, a Corporation of Ohio. Filed July 11, 1910. Serial No. 571,335.

1. In a lifting jack, a standard, a lift-casing having slidable engagement therewith, a bracket connected with said standard approximately midway of its ends, a lever pivoted to said bracket, said lift-casing being provided with teeth, a pawl pivotally connected with said lever to engage said teeth, said lift-casing being provided with apertured knuckles, and a second bracket carrying pins for insertion within said apertured knuckles.

995,606. Expanding Brake. Edward F. Kelley, Bridgeport, Conn., assignor to The Royal Equipment Company, Bridgeport, Conn., a Corporation of Connecticut. Filed June 20, 1910. Serial No. 567,773.

1. A brake of the character described comprising a band adapted to engage the inner periphery of a drum, and provided with a stay piece by which it is retained in place, a lever having one end pivotally connected with one end of said band, an operating link pivoted to the other end of said lever, a hub connected with the other end of said band, a rod pivoted at one end to said lever, the other end extending transversely through said hub, means for adjustably connecting said rod and said hub, and means for actuating said link.

995,613. Cranking Device for Automobiles. Winfield A. Long, Baltimore, Md. Filed Oct. 12, 1910. Serial No. 586,780.

1. In a cranking device for automobiles, an engine shaft, a spring-actuated bevel pinion mounted slidably upon said shaft, a

shipping lever to actuate the bevel pinion, a counter shaft, clutch-actuated bevel pinions to actuate the engine shaft pinion constantly in one direction when the counter shaft is oscillated, means for oscillating the counter shaft, and means for engaging the shipping lever to retain the latter when the pinion upon the engine shaft is projected against the tension of its actuating spring.

995,618. Tipping Truck. Konrad Malcher, Gleiwitz, Germany. Filed June 8, 1910. Serial No. 565,836.

1. A tip truck comprising an underframe having a pair of wheels at each end, a beam pivotally supported longitudinally immediately of the said pairs of wheels, a truck body movably supported on said frame and a vertical pivotal connection between the said body and the said beam, means for rotating said truck on said pivot consisting of a crown of downwardly extending teeth mounted on the bottom of said body and a driving pinion in engagement therewith mounted on said underframe and means for tipping said body endwise immediately of the wheel pairs substantially as described.

995,620. Cushion Tire. George H. Mattheson, Toledo, Ohio, assignor of one-half to John M. Hayes, Toledo, Ohio. Filed Jan. 24, 1910. Serial No. 539,835.

1. In a cushion tire, the combination of a wheel rim, a casing mounted thereon, annular rings disposed within the casing and conforming in cross section to the desired contour of the casing sides, and means rigidly spacing said rings apart intermediate their edges and holding them in contact with the opposed casing walls, said means having pivotal bearings on said rings to permit portions of the rings to which radial pressure is applied to laterally oscillate thereon.

995,623. Carburetter. Harry A. Miller, Los Angeles, Cal. Filed Nov. 16, 1909. Serial No. 528,400.

1. In a carburetter, a nozzle, a valve for controlling the flow of fuel through the nozzle, an air passage around the nozzle, an automatically variable air inlet, control-

ling means for said air passage comprising a plurality of pivoted segmental wings, and means operated by said inlet controlling means to produce a variable ratio of relative movement between the valve, and said air inlet controlling means.

995,653. Speedometer. Charles L. Bastian, Chicago, Ill. Filed Sept. 27, 1909. Serial No. 519,863.

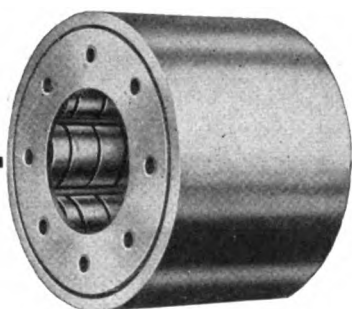
In a speedometer, an electric generator, means for driving the same from and at proportional speed to the driving element whose speed is to be indicated, a dial having a scale graduated in miles, a pointer movable over the dial and provided with an armature, an electric circuit including the generator and an electro-magnet, and means for yieldingly opposing the pull of the magnet on the armature, substantially as described.

995,688. Vehicle Shaft Forming Apparatus. George A. Lambert, Anderson, Ind. Filed Nov. 5, 1909. Serial No. 526,413. Renewed Nov. 14, 1910. Serial No. 592,328.

1. A vehicle shaft forming apparatus including a base frame with surfaces upon which a pair of shafts are adapted to be placed and curved to conform with the desired curvature of the forward portion of the shafts, means connected with one end of said frame against which the heels of the shafts abut, independently movable plates against which the other ends of the two shafts abut, a pair of upsetting levers pivoted to said plates and adapted to be folded over upon the shafts for forcing them in the desired shape, the surfaces of said levers adjacent the shafts being shaped to conform with the surfaces on the base frame on which the shafts rest, means for clamping said upsetting and forming levers down upon the shafts and a connection between said straps and upsetting levers, whereby as the levers are folded over upon the shafts they will draw the straps and give said plates the upsetting movement.

995,731. Magnetic Speedometer. John K. Stewart, Chicago, Ill. Filed June 17, 1910. Serial No. 567,420.

1. In a speedometer, in combination with a case, a magnet carrier having its shaft



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journalled for rotation of the carrier within the case, said shaft being axially chambered at one end; a hanger rigid with the case having a depending limb extending rigidly into the axial cavity of the shaft without contact therewith; a non-magnetic disk having a spindle stepped in said depending limb and having a second bearing rigid with the case; and a spring reacting between the disk and the case for biasing the disk toward a predetermined position in its range of oscillation.

995,732. Core for Molding Tires. Frederick S. Stiles and John Yekimer, Akron, Ohio, assignors, by direct and mesne assignments, to The Faultless Machine & Manufacturing Company. Filed Apr. 9, 1910. Serial No. 554,396.

1. A tire molding core comprising a plurality of separable segment members adapted to abut against one another, end for end, and each having an inwardly extending member provided with a lateral flange an open clamping ring engaging said flanges and coacting therewith to draw the segments together and means to detachably secure the ends of the said open clamping ring to the said inwardly extending member of one of said segments.

995,738. Vehicle Tire. Johannes Thomsen, Chicago, Ill. Filed May 23, 1910. Serial No. 562,871.

1. The combination of a casing, a sectional ring in the inner portion of said casing, lugs on said ring arranged in pairs transversely to the plane of the wheel, springs engaging with said lugs, a shoe having its outer surface conforming with the outer portion of the inner surface of said casing and having lugs engaging with said springs, a stirrup over said shoe, and flexible connections between said stirrup and said ring for holding said springs under tension and limiting the outward movement of said shoe.

995,771. Luggage Carrier. James R. Coyle, Huntsville, Ala., assignor of one-half to Elmore J. Mitchell, Huntsville, Ala. Filed July 7, 1910. Serial No. 570,877.

1. A luggage carrier including a pair of supports adapted for attachment to a vehicle and having horizontal arms provided with longitudinal guide grooves, lazy-tongs mounted against the inner faces of the supports and having lateral projections engaging in the guide grooves when closed, and transverse bars carried across the inner ends of the lazy-tongs to close the ends of the carrier.

995,807. Valve Mechanism for Gas Engines. Robert M. Roof, Muncie, Ind., assignor to The Peoples Trust Company, trustee, Muncie, Ind. Filed Apr. 19, 1909. Serial No. 490,866.

1. In a valve mechanism of the kind described, the combination of a valve chest having an exhaust chamber and an inlet chamber separated by a partition, a port from the said exhaust chamber, a sleeve adapted to pass through the said chambers and the said partition and having openings in the portion thereof that is surrounded by the intake chamber the inner end of said sleeve being flared to form a valve for said port, a removable flange on the bottom of said sleeve, a spring between the said flange and the wall of the valve chest, a valve at the inner end of said sleeve having on its stem a head to move slidably in the interior of said sleeve, a guide member carried on the inside of the sleeve and in

which the valve stem may move slidably, a spring between the said head and the valve head.

995,828. Clutch Mechanism. Henry A. Waterman, Milwaukee, Wis., assignor to International Harvester Company, a Corporation of New Jersey. Filed Apr. 21, 1910. Serial No. 556,710.

1. A clutch mechanism including, in combination, a rotatable shaft, an annular clutch ring loosely mounted upon said shaft and adapted to be received by said annular ring in a manner to frictionally engage therewith, means for causing the frictional engagement of the two clutch members, including a longitudinal groove in said shaft, and a wedge engaging with a side of said groove and with said split ring in a manner to move longitudinally to cause expansion of the latter when said shaft is turned in one direction.

995,857. Internal Combustion Engine. Hugh Francis Fullagar, Newcastle-upon-Tyne, England. Filed Nov. 4, 1909. Serial No. 526,226.

1. An internal combustion engine comprising two cylinders arranged side by side, two oppositely movable pistons in each cylinder, and coupling rods connecting each piston in one cylinder to the oppositely situated piston in the other cylinder.

995,878. Indicator for Spark Plugs. Addison R. Lamberson, Albany, N. Y. Filed Dec. 1, 1910. Serial No. 595,023.

1. The combination of a metallic tubular member, a head closing one end of said tubular member and made of insulating material, a metallic member mounted within said head and provided with a portion to be applied to a conductor, a spring mounted within said head and in electrical communication with said metallic tubular member, a lamp disposed with said tubular member and engaging said spring, and a contact washer connected with said tubular member and engaging a part of said lamp.

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THE MOTOR WORLD

Vol. XXIX.

New York, U. S. A., Thursday, October 12, 1911.

No. 3

DURANT'S PLANS BEGIN TO UNFOLD

**Chevrolet Car but One Link in Chain—
Plants Acquired for Motors and
Low-Priced Model.**

Although he remains a director of the General Motors Co., which he organized to dominate the automobile industry of the world and which he himself dominated until the banking interests stepped in a year ago, W. C. Durant is actively prosecuting plans for rebuilding an automobile business of his own.

Acting through W. H. Little, one of his old lieutenants, he, as already is well known, has organized the Chevrolet Motor Car Co. in Detroit, and this was supposed to represent the sum total of his activity. But it transpires that the high speed, high priced car which the Chevrolet company will produce is but one link in the chain which Durant is forging. For he also has the production of a popular priced car in view, and by those who are in a position to be informed is credited with having already placed himself in position to produce it. For that purpose he is reported to have acquired not only a car-building plant, but an engine-making factory as well, the former being the Flint Wagon Works, which has been producing the Whiting car, while the engines will be made by the Mason Motor Co., which recently was organized in Flint, Mich., and which Durant, through others, is said to control. Durant himself is saying nothing, but that his boundless activity and industriousness will not much longer permit him to remain in the background seems at least fairly certain.

From time to time reports have been current that his connection with the General Motors Co. had terminated, but, though it is well known that he long since ceased to be a power in its affairs, it can be authoritatively stated that he still remains a director of the big corporation which

caused him to over-reach himself. The board of directors held a meeting only last week and although his fellows on the board are well aware of his activities in other directions and on his own account, Durant still retains his official identification with the company.

Detroiters Form Steam Truck Company.

Composed of Detroit men and incorporated under the laws of West Virginia, the Harger Steam Truck Co., of New York, has been organized with capital stock of \$1,000,000. While the title of the company suggests that it will engage in the manufacture of steam trucks, none of the men interested will give any information concerning the project, stating that plans are not yet sufficiently ripe for publication. The Detroiters who incorporated the company are as follows: Walter S. Wheeler, of the firm of McIntyre & Wheeler, lawyers; James L. Weir, of the Electric Depot Co.; John S. Harger, George F. Conis and Gilbert E. Ofeldt.

Ross to Make Truck Transmissions.

Several of the men previously identified with the Ross Gear and Tool Co., of Lafayette, Ind., have organized the Ross Machine Co., in that city, and secured a plant on South Fourth street, where motor truck transmissions will be produced. William Ross is president of the new company; Linn C. Ross, secretary and treasurer, and Robert Conn, general manager. The company, which has been capitalized at \$15,000, will begin manufacturing operations early next month.

Will Be the Briggs-Detroit Company.

Claude S. Briggs, who recently resigned as sales manager of the Brush Runabout Co. of Detroit to further the organization of a company of his own, has not yet completed his plans, although it is now known that the company will be styled the Briggs-Detroit Co., and that the car which it will manufacture will sell for less than \$800. The car, as previously announced, will be styled the Detroit.

STANDARDIZING THE TRUCK WHEEL

**S. A. E. Makes Further Progress in That
Direction—Tire Fastenings and Official
Stamp Recommended.**

As tangible evidence of progress in the standardization work of the Society of Automobile Engineers commercial vehicle manufacturers will be asked to stamp all wheels purchased and inspected according to the new S. A. E. standards with a permanent mark visible during the life of the wheel. Much useful work already has been accomplished by the society in carrying out its standardization program, but this is the first instance in which it has attained to the dignity of a hall-mark. In view of the importance of distinguishing between standard and non-standard wheels action to this end was taken at a joint conference between the wheel dimensions and fastenings committee of the society and representatives of the leading solid tire manufacturers, held at the New York headquarters of the society last Thursday, 5th inst.

Continuing its work of perfecting wheel standards for commercial vehicles the society has progressed from the determination of a permanent metal band surrounding the felloe to a consideration of the fastening of tires of the flange type, and also has tackled the difficult and intricate problem of standardizing and grading woods for artillery wheels. The result of last week's conference was that the committee was requested to recommend to the society the adoption of definite specifications for bolts for the tire flanges.

The recommendations were for a standard of half inch through bolt for all sizes of solid tire and for a 28½-inch diameter bolt hole circle for 36-inch tires, increasing or decreasing by even two-inch differences for larger or smaller tire sizes. Up to and including 36-inch tires, it was recommended that 8, 12 or 24 bolts, equally spaced, should

be used, according to requirement, while for tire sizes between 36 and 42 inches 10, 15 or 30 bolts should be used. For tires of 42 to 48 inches diameter 12, 18 or 36 bolts should be used, in the opinion of the meeting, and for sizes between 48 and 54 inches, 14, 21 or 42 bolts.

In consideration of the extremely important question of woods for wheel construction two papers were presented to the meeting, one by Arthur Ryan, of Crane & MacMahon, Inc., of New York City, and the other by W. P. Kennedy, chairman of the committee, the latter dealing more particularly with the seasoning of timber for wheels. The problem of grading material for wheels has not been advanced sufficiently for standard recommendations to be adopted as yet, however.

Metal wheel dimensions insofar as they relate to the application of side flange tires will be taken up by the society on recommendation of the conference, while the moot point of necessary tolerance in the circumference of the permanent metal band on S. A. E. standard wheels was again discussed, with the result that the committee has for the time being reserved its opinion on reconsideration.

Changes Among Prominent Tradesmen.

H. R. Croninger, who most recently was identified with the Alco interests, has joined the staff of the Speedwell Motor Car Co., of Dayton, O. He will have charge of its truck department.

William Fewell, manager of the Oldsmobile branch in St. Louis, has been transferred to the management of the Boston branch. He succeeds G. W. Houk, who, it is understood, will go abroad in the interests of the General Motors Co., of which the Olds company is a part.

Joseph E. Warren has joined the Metzger Motor Car Co.'s sales department in the capacity of chief of district managers. Previously he was connected with the Chalmers Motor Co., in which W. C. Hood, the Metzger company's present sales manager, occupied a similar office.

Fred P. Nehrbas, formerly general superintendent of the E. R. Thomas Motor Co., has been made factory manager of the American Locomotive Co.'s Alco plant at Providence, R. I. Nehrbas's identification with the industry dates from 1899, which indicates that his experience is ripe and extensive.

Hawkeye Building Truck Plant in Iowa.

G. C. Schneider, W. Morgan and D. Stofflet, of Cedar Rapids, Iowa, have formed the Hawkeye Carriage and Auto Co., in that city, where they are erecting a one-story factory, which will be devoted to the manufacture of a motor truck embodying several new features originated by Schneider. It is expected that the plant will be completed and in operation before the end of the year.

THE MOTOR WORLD

BOARD OF TRADE ALLOTS DUTIES

Make-Up of Its Nine Standing Committees Announced—Titles Suggest a Broadening of the Field of Endeavor.

Routine work was the rule at the quarterly meeting of the general membership of the Automobile Board of Trade, which was held in its New York offices on Thursday last, 5th inst. The only exception to the rule was the announcement of the make-up of the nine committees which will shape the work of the organization until the next annual meeting. Those who compose the committees, several of which are new, are as follows:

Patents—C. C. Hanch (Marmon), W. H. VanDervoort (Glide), L. H. Kittredge (Peerless), A. Macauley (Packard).

Trade—H. O. Smith (Premier), E. R. Benson (Cadillac), W. E. Metzger (Metzger), C. W. Churchill (Winton), W. T. White (White).

Statistical—Benjamin Briscoe (U. S. Motor), E. P. Chalfant (Thomas), J. S. Clarke (Autocar).

Show—George Pope (Pope), Alfred Reeves (U. S. Motor), M. L. Downs (Autocar).

Legislation and law—G. H. Stilwell (Franklin), Albert L. Pope (Pope), W. B. Hoyt.

Intercourse and arbitration—G. E. Daniels (Oakland), W. C. Shepherd (Matheson), J. W. Gilson (Mitchell).

Good roads—R. D. Chapin (Hudson), S. D. Waldon (Packard), J. N. Willys (Overland).

Publicity—Alfred Reeves (U. S. Motor), E. R. Estep (Packard), H. W. Ford.

Mechanical co-operation—A. L. Riker (Locomotive), D. Ferguson (Pierce-Arrow), F. B. Stearns (Stearns), H. E. Coffin (Hudson), C. W. Nash.

Olds Explains Reo's Passed Dividend.

Although the Reo Motor Truck Co., of Lansing, Mich., which was organized about a year ago by the same interests, declared a 10 per cent. dividend at its annual meeting held last week, the Reo Motor Car Co. itself for the first time passed its annual dividend. The fact that in other years the Reo company has cut several plump melons, made the passing of the dividend on this occasion the cause of considerable trade comment. R. E. Olds, president of the company, explained, however, that although there was a cash balance of \$1,280,000 on hand, instead of distributing this surplus to the stockholders, as heretofore, it is the intention to use the money for working capital and thereby save the 6 per cent. usually paid for bank loans. He reported that orders had been booked for 10,270 cars and that although they would have to be sold on closer margin than here-

tofore, he believed that it would be possible to declare a 50 per cent. deferred dividend next April.

Barnes Acquires the Parish Account.

Claire L. Barnes & Co., of Chicago, Detroit, Cleveland and New York, who attained trade prominence in a remarkably short space of time, have acquired the account of the Parish Mfg. Co., Reading, Pa., makers of heat treated frames and other steel specialties which are in wide demand. In addition to selling Parish frames and specialties Barnes & Co. are direct factory representatives handling the entire production of Billings & Spencer, drop forgings and tools, Van Wagner die castings, Fort Pitt small steel castings and Simmons wire spring constructions, which, with their four branches and intimate trade acquaintance, places them in splendid position to render efficient service anywhere.

Credit Association Admits Thirteen More.

At the last meeting of the Automobile Trade Credit Association, 13 new members were admitted to membership, as follows: Armiger Chemical Co., Chicago, Ill.; Bliven & Carrington, Inc., New York City; Calmon Asbestos & Rubber Works, New York City; Federal Rubber Manufacturing Co., Cudahy, Wis.; O. Fenstermacher, Minneapolis, Minn.; Gulf Refining Co., Pittsburg, Pa.; Interstate Auto & Sup. Co., Sioux City, Ia.; Lowe Motor Supplies Co., New York City; Lutz-Lockwood Mfg. Co., Roselle, N. J.; Marvel Carburetter Co., Indianapolis, Ind.; W. P. Miller's Sons, Long Island City, N. Y.; G. Piel Co., Long Island City, N. Y.; Union Auto Specialties Co., Pittsburg, Pa.

Pennsylvania Strikes Financial Shoals.

The Pennsylvania Auto-Motor Co., of Bryn Mawr, Pa., maker of the Pennsylvania car, has been petitioned into bankruptcy. Although producing a car of quality, the company had been practically at a standstill for more than a year, not even the new blood, in the persons of W. H. Hurlburt and Thomas F. Moore, being able to move it forward.

Fire Damages Holtzer-Cabot Factory.

Fire of mysterious origin started at midnight, October 6-7, in the factory of the Holtzer-Cabot Electric Co., Brookline, Mass., and destroyed the entire main building, causing nearly \$250,000 damage. Among other things, the Holtzer-Cabot company makes a dynamo lighting and ignition system for automobiles.

Turton Heads Newark Truck Project.

The Commercial Motor Truck Construction Co. has been organized in Newark with W. Eugene Turton, president, Dr. William Dimond, vice-president, and Jacob Ludwig, secretary-treasurer. They purpose making three models of a four-cylinder, four-cycle, gear driven truck.

BIG INCREASES IN SOUTH AND EAST

**Export Shrinkages in Canada and Europe
More Than Offset by Gains Elsewhere
—Big Jump in Oceania.**

The spreading out of the export trade in American automobiles continues unabated, the statistics for the month of August, 1911, clearly showing the shifting of the market towards Asia, Oceania and South America. The gains during this month are large, amounting to fully 50 per cent., despite the fact that Canada, Mexico and all the European countries, with the exception of France, reduced their purchases, as compared with the same month of the preceding year. During August, 1911, 1,150 cars, valued at \$1,248,926, were sent abroad, as against 656 cars, valued at \$897,322, in the same month of 1910. Parts to the value of \$136,437 worth in August of last year.

•The most significant showing is that made by British Oceania, which increased its purchases from \$68,212 to \$295,548, a clear gain of 335 per cent. Asia also took a much larger quantity than in the same period of last year, its quota increasing from \$46,806 to \$138,867, or practically 200 per cent.

The figures for the eight months ending August 31, 1911, serve to accentuate this shifting of the market. While shipments to Canada still show a small increase over those during the same period of 1910, those for the United Kingdom shrunk by \$420,000, or about 19 per cent., the figures being \$1,867,323 for the 1911 period, and \$2,286,984 for that of 1910. This loss, to which must be added the losses in France (\$240,000), Germany (\$186,000), Italy (\$172,000), and Mexico (\$155,000), however, is more than balanced by the extraordinary gains made in South America (\$440,000), Oceania (\$900,000), Asia (\$270,000) and Other Countries (\$70,000). The total quantity exported during this period was 10,085 cars, valued at \$10,443,490, and \$2,207,981 worth of parts, as compared with 5,970 cars, valued at \$8,266,808, and \$1,408,495 worth of parts in the eight months of 1910. The report in detail:

	August		Eight months ending August		
	1910	1911	1909	1910	1911
Automobiles and parts of—					
Automobiles	\$897,322	\$1,248,926	\$5,107,953	\$8,266,808	\$10,443,490
Parts of (except tires)	136,437	306,274	526,492	1,408,495	2,207,981
Exported to—					
United Kingdom	205,007	213,328	1,612,726	2,286,984	1,867,323
France	15,699	45,024	739,764	613,737	371,824
Germany	49,334	7,049	151,711	284,772	98,332
Italy	7,510	5,597	214,345	347,629	175,511
Other Europe	69,075	49,581	267,086	593,450	541,803
Canada	398,825	314,437	1,746,453	3,889,539	4,239,702
Mexico	70,492	18,669	294,286	431,594	276,733
West Indies and Bermuda	23,293	20,179	203,646	270,638	230,611
South America	60,443	122,080	125,978	286,651	726,309
British Oceania	68,212	295,548	137,766	262,495	1,153,744
Asia and other Oceania	46,806	138,867	70,107	280,961	566,996
Other countries	19,063	18,567	70,577	126,853	194,612
Total	\$1,033,759	\$1,555,200	\$5,634,445	\$9,675,303	\$12,651,471

Two New Men Enter Kokomo Tires.

Fred I. Willis, of the Hersey-Willis Co., of Indianapolis, and G. H. Hamilton, former sales manager for the G. & J. Tire Co. and more recently New York representative of the Continental Rubber Works, of Erie, Pa., have acquired an interest in the Kokomo Rubber Co., of Kokomo, Ind., and hereafter will play an active part in its affairs. Willis will divide his time between the Kokomo company and the Hersey-Willis Co., while Hamilton next week will go to Kokomo and assume charge of the sales department. D. C. Spraker, who built up the Kokomo concern from a modest beginning, will retain the presidency, and D. "Lon" Spraker will remain his first lieutenant. The company has a proud reputation in the matter of bicycle, motorcycle and carriage tires and now is preparing to take up automobile tires in real earnest. It has made a number of them during the past several years, but never really entered the market with them.

Confusion of the Woodards, O. J. and H. J.

Ever since Harvey J. Woodard resigned the management of the Diamond Rubber Co. of New York and became general manager of the Century Tire Co., of New York, his brother, O. J., who retained his connection with the Diamond company, has been put to it to make clear that it was H. J. and not O. J. who made the change. As he has not yet been able wholly to overtake the reports that confuse him with his brother, O. J. Woodard wants it generally known that he remains manager of the truck tire and wire departments of the Diamond Rubber Co.'s factory in Akron, and has nothing to do with the Century Tire Co.

August Strong Month for Tire Exports.

During the month of August, 1911, there were exported to foreign countries \$251,262 worth of American automobile tires, as compared with \$151,468 worth during the same month of 1910. During the eight months ending August 31, 1911, \$1,715,322 worth were sent abroad, but no comparison with last year's amount is available, as the Government did not list tires separately previous to July, 1910.

MAKERS WHO SECURED SHOW SPACE

**M. A. M. and N. A. A. M. Line Up Their
Members for New York and Chicago
Exhibitions—Their Preferences.**

The Motor and Accessory Manufacturers on the 5th inst. completed the allotment of space to its members for the Madison Square Garden Show, in New York, and the Chicago Show. In each case the M. A. M. contracted for the greater portion of the desirable accessory space, subsequently dividing it among its own members. The members to whom space was allotted are as follows:

Both Weeks at Garden.

Ajax-Grieb Rubber Co., American Ball-Bearing Co., American Circular Loom Co., Apple Electric Co., The Badger Brass Manufacturing Co., The Baldwin Chain & Mfg. Co., Bosch Magneto Co., S. F. Bowser & Co., Briscoe Manufacturing Co., Brown-Lipe Gear Co., Byrne, Kingston & Co., Champion Ignition Co., The Chandler Co., Chicago Telephone Supply Co., Coes Wrench Co., Columbia Lubricants Co. of New York, Columbia Nut & Bolt Co., The Connecticut Telephone & Electric Co., Consolidated Rubber Tire Co., Continental Caoutchouc Co., Covert Motor Vehicle Co., The Wm. Cramp & Sons Ship & Engine Building Co., Crucible Steel Co. of America, The Dean Electric Co., Diamond Chain & Manufacturing Co., The Diamond Rubber Co., Jos. Dixon Crucible Co., Dorian Remountable Rim Co., Driggs-Seabury Ordnance Co.

Edison Storage Battery Co., The Edmunds & Jones Manufacturing Co., Eise-mann Magneto Co., The Electric Storage Battery Co., Empire Tire Co., Firestone Tire & Rubber Co., The Fisk Rubber Co., G & J Tire Co., Gemmer Manufacturing Co., The B. F. Goodrich Co., The Goodyear Tire & Rubber Co., Gray & Davis, The R. E. Hardy Co., A. W. Harris Oil Co., Hartford Rubber Works Co., Hartford Suspension Co., Havoline Oil Co., Herz & Co., The Hess-Bright Manufacturing Co., The Hoffecker Co., Hyatt Roller Bearing Co., Janney-Steinmetz & Co., Isaac G. Johnson & Co., Phineas Jones & Co., Jones Speedometer Co., Atwater Kent Manufacturing Works, Kokomo Electric Co., Leather Tire Goods Co., Lebanon Steel Casting Co., J. Ellwood Lee Co., Light Manufacturing & Foundry Co., Link-Belt Co., Lovell-McConnell Manufacturing Co.

McCord Manufacturing Co., The McCue Co., C. A. Metzger, Michelin Tire Co., Morgan & Wright, A. R. Mosler & Co., The Motz Clincher Tire & Rubber Co., Muncie Gear Works, National Carbon Co., National Tube Co., The New Departure Manufacturing Co., N. Y. & N. J. Lubricant Co., The Noera Manufacturing Co., Oliver Manufacturing Co., Pennsylvania Rubber Co.,

Pittsfield Spark Coil Co., Remy Electric Co., The Republic Rubber Co., The Royal Equipment Co., A. O. Smith Co., The Sparks-Withington Co., Spicer Manufacturing Co., C. F. Splittorf, Standard Roller Bearing Co., The Standard Welding Co., Stewart & Clark Manufacturing Co., Stromberg Motor Devices Co., Swinehart Tire & Rubber Co.

The Timken-Detroit Axle Co., The Timken-Roller Bearing Co., The Turner Brass Works, U. S. Light & Heating Co., Vacuum Oil Co., Vanadium Metals Co., The Veeder Manufacturing Co., Warner Gear Co., Warner Manufacturing Co., Weed Chain Tire Grip Co., Weston-Mott Co., Wheeler & Schebler, Whitney Manufacturing Co., J. H. Williams Co., O. W. Young, Federal Rubber Manufacturing Co., Detroit Electric Appliance Co., Carnegie Steel Co., Automobile Supply Manufacturing Co., The Simms Magneto Co., International Acheson Graphite Co., The Buda Co., Stutz Auto Parts Co., Bower Roller Bearing Co., United Rim Co., Jacobson-Brandow Co., General Electric Co.

For First Week Only.

Allen Auto Specialty Co., Auburn Auto Pump Co., The A-Z Co., Briggs & Stratton Co., Continental Rubber Works Co., Adam Cook's Sons, C. Cowles & Co., Dover Stamping & Manufacturing Co., Gabriel Horn Manufacturing Co., The Gilbert Manufacturing Co., Globe Machine & Stamping Co., Gray-Hawley Manufacturing Co., George A. Haws, Hayes Manufacturing Co., Heinze Electric Co., Hodgman Rubber Co., Kellogg Manufacturing Co., National Coil Co., The Pantasote Co., Rose Manufacturing Co., J. H. Sager Co., The Seamless Rubber Co., C. A. Shaller Co., The Sprague Umbrella Co., The Springfield Metal Body Co., The Stein Double Cushion Tire Co., Valentine & Co., Vesta Accumulator Co., Warner Instrument Co., Western Tool & Forge Co., White & Bagley Co., The Willard Storage Battery Co., The Manufacturers Foundry Co., Doehler Die-Casting Co., The Hess Spring & Axle Co., The G. Piel Co., The Esterline Co., Universal Wind Shield Co., The Batavia Rubber Co., Double Fabric Tire Co., Voorhees Rubber Manufacturing Co., Wolverine Lubricants Co.

For Second Week Only.

Ross Gear & Tool Co.

For Both Weeks at Chicago.

Ajax-Grieb Rubber Co., American Ball Bearing Co., American Circular Loom Co., Apple Electric Co., Auto Parts Manufacturing Co., The Badger Brass Manufacturing Co., The Baldwin Chain & Mfg. Co., Bosch Magneto Co., S. F. Bowser & Co., Bliscoe Manufacturing Co., Brown-Lipe Gear Co., Byrne, Kingston Co., Champion Ignition Co., The Conn. Telephone & Elec. Co., Consolidated Rubber Tire Co., Continental Caoutchouc Co., Continental Motor

Manufacturing Co., Covert Motor Vehicle Co., The Wm. Cramp & Sons Ship & Engine Building Co., The Dean Electric Co., Diamond Chain & Mfg. Co., The Diamond Rubber Co., Driggs-Seabury Ordnance Corp., Edison Storage Battery Co., The Edmunds & Jones Mfg. Co., Eisemann Magneto Co., The Electric Storage Battery Co., Empire Tire Co., Firestone Tire & Rubber Co., The Fisk Rubber Co.

G & J Tire Co., Gemmer Manufacturing Co., The B. F. Goodrich Co., The Goodrich Tire & Rubber Co., Gray & Davis, C. T. Ham Manufacturing Co., The R. E. Hardy Co., A. W. Harris Oil Co., The Hartford Rubber Works Co., Hartford Suspension Co., Havoline Oil Co., Herz & Co., The Imperial Brass Manufacturing Co., Isaac G. Johnson & Co., Jones Speedometer Co., Atwater Kent Manufacturing Works, Kinsey Manufacturing Co., Kokomo Electric Co., Leather Tire Goods Co., J. Ellwood Lee Co., W. H. Leland & Co., Link-Belt Co., Lovell-McConnell Manufacturing Co., McCord Manufacturing Co., Michelin Tire Co., Morgan & Wright, A. R. Mosler & Co., The Motz Clincher Tire & Rubber Co., Muncie Gear Works, National Carbon Co., National Coil Co., National Tube Co., N. Y. & N. J. Lubricant Co., Oliver Manufacturing Co.

Pennsylvania Rubber Co., Pittsfield Spark Coil Co., Remy Electric Co., The Republic Rubber Co., Ross Gear & Tool Co., The Royal Equipment Co., The Sparks-Withington Co., Spicer Manufacturing Co., C. F. Splittorf, Standard Roller Bearing Co., The Standard Welding Co., Stewart & Clark Mfg. Co., Stromberg Motor Devices Co., Swinehart Tire & Rubber Co., The Timken-Detroit Axle Co., The Timken Roller Bearing Co., The Turner Brass Works, The U. S. Light & Heating Co., The Veeder Manufacturing Co., Vesta Accumulator Co., Warner Gear Co., Warner Mfg. Co., Weed Chain Tire Grip Co., Western Motor Co., Weston-Mott Co., Wheeler & Schebler, Whitney Manufacturing Co., J. H. Williams Co., Federal Rubber Mfg. Co., Detroit Electric Appliance Co., Waukesha Motor Co., The Esterline Co., The Simms Magneto Co., Falls Machine Co., International Acheson Graphite Co., The Buda Co., Stutz Auto Parts Co., The United Rim Co., Jacobson-Brandow Co., General Electric Co.

For First Week Only.

Allen Auto Specialty Co., Auburn Auto Pump Co., Avery Portable Lighting Co., Booth Demountable Rim Co., Briggs & Stratton Co., Columbia Lubricants Co. of New York, Continental Rubber Works Co., Adam Cook's Sons, C. Cowles & Co., Jos. Dixon Crucible Co., Dorian Remountable Rim Co., Dover Stamping & Mfg. Co., The Globe Machine & Stamping Co., Gray-Hawley Mfg. Co., George A. Haws, Hayes Manufacturing Co., Heinze Electric Co., The Hoeffcker Co., Kellogg Manufacturing Co., The McCue Co., The Pantasote Co., J. H. Sager Co., C. A. Shaler Co.,

A. O. Smith Co., The Sprague Umbrella Co., The Stein Double Cushion Tire Co., Valentine & Co., Warner Instrument Co., Western Tool & Forge Co., The Willard Storage Battery Co., Doehler Die Casting Co., The Hess Spring & Axle Co., The G. Piel Co., Universal Wind Shield Co., Universal Tire Protector Co., Automobile Supply Manufacturing Co., The Batavia Rubber Co., Double Fabric Tire Co., Voorhees Rubber Mfg. Co., Wolverine Lubricants Co., The Start-Lite Co., Gabriel Horn Manufacturing Co.

Car Makers Who Have Booked Space.

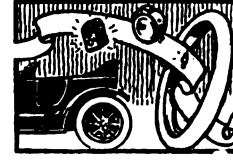
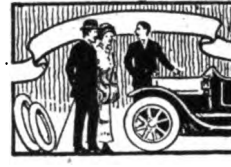
Allotments of space in the Grand Central Palace Show in New York and in the Chicago Show were made by the National Association of Automobile Manufacturers on the 4th inst., at its offices in New York. The applicants for space were divided into three classes, of which the preferred class were the members of the N. A. A. M.; the second, members of the Automobile Board of Trade who are not members of the N. A. A. M., and the third, those not members of either organization. The majority of the accessory space allotments are made by the Motor and Accessory Manufacturers from the space assigned wholesale to that organization. The N. A. A. M. gave space to the Grand Central Palace, January 10th to 17th, as follows:

The Thomas P. Jeffery Co., The Gramm Motor Truck Co., Baker Motor Vehicle Co., Babcock Electric Carriage Co., Kelly Motor Truck Co., The Columbus Buggy Co., The Waverley Co., Cole Motor Car Co., Hupp Motor Car Co., Hupp Corporation, Regal Motor Car Co., Clarke-Carter Automobile Co., The Ohio Electric Car Co., Abbott Motor Co., Imperial Automobile Co., The Walter Auto-Truck Mfg. Co., The De Tamble Motors Co., Krit Motor Car Co., Auburn Automobile Co., The Schacht Motor Car Co., Crow Motor Car Co., F. I. A. T. Cars.

Great Western Auto Co., McFarlan Motor Car Co., Lion Motor Car Co., Haberer & Co., The Dayton Auto Truck Co., Middleby Auto Co., Ames Motor Car Co., Lauth-Juergens Motor Car Co., Colby Motor Co., Walker Vehicle Co., Newark Automobile Mfg. Co., Warren Motor Car Co., National Motor Truck Co., Sullivan Motor Car Co., Eclipse Truck Co., W. A. Paterson Co., Elkhart Carriage & Harness Mfg. Co., Universal Motor Truck Co., Lippard-Stewart Motor Car Co., Cortland Motor Wagon Co., The Sanford-Herbert Co., Ideal Motor Car Co., Rassel Motor Car Co., Kline Motor Car Corporation, Velie Motor Vehicle Co., Paige-Detroit Motor Car Co., Packers Motor Truck Co., Atterbury Motor Car Co., Durant-Dort Carriage Co., Marion Motor Sales Co.

For the Chicago Show the automobile manufacturers to receive space for the first week, January 27th to February 3rd, are as follows:

(Continued on page 191)



R. Martin has opened a garage in Eddyville, Ia.

E. Garber has opened salesrooms at Washington, Ill., where he will display Cole cars.

C. L. Trenery has sold his garage and salesroom in Lemars, Ia., to Albert Wenders.

Robert & Lott, who conducted a garage at Salem, S. D., have dissolved partnership.

Reek & Bennet is the style of a new firm which has opened a garage in Battle Creek, Mich.

Daniel Pierce is building a cement garage at Harleyville, N. Y. It will be two stories high.

Harry N. Wilson has purchased the interest of Thomas Meiklejohn in the Crescent Motor Co., at Fond-du-lac, Wis.

F. A. Skipton has built a new garage on Fourth street, Council Bluffs, Ia. It will accommodate 30 cars, is made of brick and cost \$2,000.

Theodore Sture and his son, Albert, have purchased property in Manning, Ia., on which to erect a garage. It will be of brick and cement blocks.

The Paxton-Crumley Automobile Co. has opened salesrooms at 660 North Broad street, Philadelphia, Pa. It will handle Warren-Detroit cars.

Alexander List has broken ground for a two-story garage to be erected at 51st street and 12th avenue, New York City. It will cost, when complete, \$9,000.

George W. Browne has opened, at a cost of \$15,000, a salesroom and garage at 458 Milwaukee street, Milwaukee, Wis. He handles Overland and Marmon cars.

Allie Houdeshell, who conducted an implement business at Irene, Ill., has sold the latter and opened a garage and repair shop on State street, Belvidere, Ill.

John A. Magee has opened a salesroom at Government Place and West Third street, Williamsport, Pa. He will handle Stoddard-Dayton, E-M-F and Flanders cars.

The Iowa Motor Co. has opened salesrooms and a garage on Stevens street, Iowa Falls, Ia. Clare McDowell and Claude Nickerson are the men behind the enterprise.

At a cost of \$5,000 W. H. Brophy, of Bisbee, Tex., is building a modern garage in El Paso, in the same State. It is located at the corner of Stanton and Missouri streets.

Alexander Allan has broken ground for

a new garage at Highland and Germantown avenues, Philadelphia, Pa. It will be 47x105 feet, two stories high, of brick and stone.

R. E. Betts, who is in partnership with A. J. Mandel, operating a garage and repair shop in Sioux City, Ia., has disposed of his interest; Mandel will continue the business alone.

L. L. Savage has leased the building now under construction at the corner of Fifth street and Lawrence avenue, Springfield, Ill. When completed it will give a garage and salesroom 105x60 feet.

A. W. Tyner, N. P. Bush and R. C. Bush have purchased the Day County Auto and Supply Co.'s business at Webster, S. D. They will continue the business under the style Tyner Garage Co.

Norman R. Gallatin and Steward R. Myers have purchased from A. B. Oden the Penn Park Garage at Park and Mason avenues, York, Pa. They will do business under the style Central Garage.

Earle C. Anthony is building a four-story garage of reinforced concrete in Los Angeles, Cal. It is located at the southwest corner of Tenth and Hope street and will cost when complete over \$100,000.

W. C. Knight has sold his interest in the City Garage, Temple, Tex., to R. B. Hemphill, of Coleman, Tex. The latter will continue the business in partnership with A. S. Foyt, retaining the style City Garage.

Charles Frey, who formerly conducted a livery business at 117 West Fourth street, Davenport, Ia., has remodeled the building into an automobile salesroom and garage. He will carry several lines of popular-priced cars.

Painting automobiles is to be the specialty of a new company which just has "opened up" in Burlington, Ia. It will do business under the style the Burlington Carriage and Automobile Painting Co., with B. Vorwerk as manager.

Incorporated under the laws of West Virginia, with \$25,000 capital, the Premier Motor Co. has been organized for the purpose of operating a garage and general automobile business in Pittsburg, Pa. It has located at 112 Shady avenue.

Tom Botterill, who handles Hudson, Pierce-Arrow and Columbus electric cars at Denver, Colo., is building what is said to be one of the largest repair shops in the West. The structure will be two stories high and will afford 8,500 square feet of floor space.

H. W. Fox, who for several years past

has been manager of the Maxwell Garage in Sandusky, O., has opened a garage on his own account at the corner of Hancock and Market streets. He will operate as the Fox Automobile Garage, and will devote himself to repair work exclusively.

Simultaneously with moving into more commodious quarters at 1512-14 Broadway, Denver, Colo., the Western Marion Motor Co., dealer in Marion cars, has taken the agency for the Abbott-Detroit line. The company also has opened a spacious garage, 60x40 feet, in connection with its showrooms.

The Simplex Automobile Co., which was incorporated last week in St. Louis, Mo., with \$20,000 capital, has leased the building at 3214 Locust street, which now is in course of construction. Temporary quarters have been established at 3907 Olive street. J. D. Wooster Lambert is president and general manager of the company.

The Merchants' Auto Co. is the style of a new concern which has opened a garage at 322 North Delaware street, Indianapolis, Ind., with the intention of taking care of the motor equipment of some of the department stores. The new company has as its stockholders a number of the most prominent business men of Indianapolis, including E. Darrow, president; W. E. Burk, vice-president; Harvey B. Stout, secretary, and Charles S. Shotwell, treasurer.

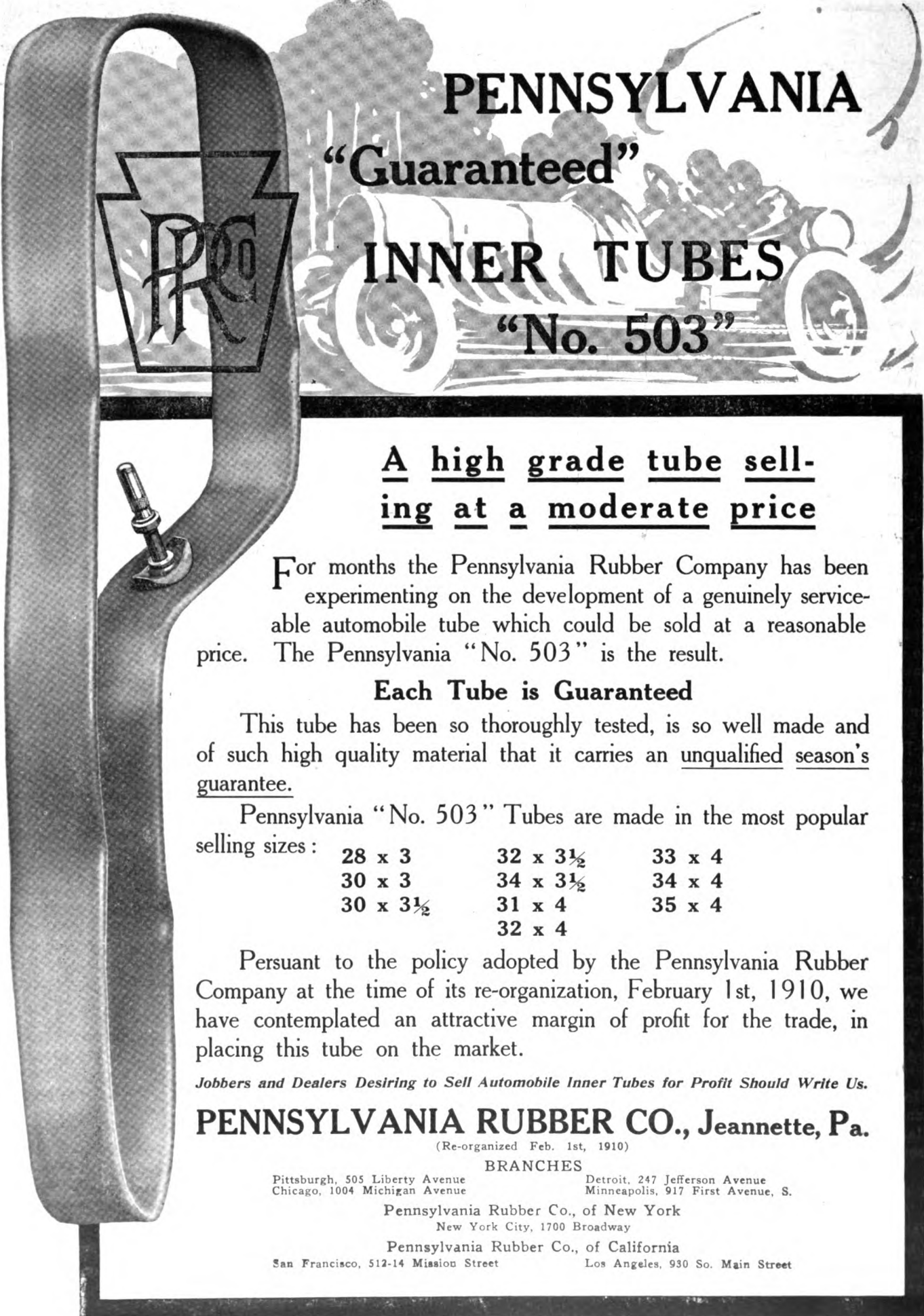
A number of important changes in the automobile business of Springfield, Mass., took place on October 1. E. A. Nelson, agent for Buick cars, retired from business and the Buick line henceforth will be handled by the Woodward-Reopell Co. The Northcross-Cameron Co. has discontinued its sale of Hudson cars, while the firm of Riggs & Bloom has been dissolved. A. E. Bloom, one of the partners of this company, has purchased a controlling interest in the Hampden Auto Co., and taken the agency for Hudson cars. E. R. Clark has withdrawn from the E. R. Clark Automobile Co. and formed the Western Massachusetts Cadillac Co. He will handle Cadillacs, while the Clark company will continue to sell Pierce-Arrow cars.

Recent Losses by Fire.

New York City, N. Y.—John O'Neill's garage at 514 West 37th street. Loss, \$500.

Malden, Mass.—Hancock & Ready carriage and automobile factory destroyed. Loss, \$25,000.

Memphis, Tenn.—J. E. Starke's garage at 665 Willett street and one car destroyed. Loss, \$9,000.



PENNSYLVANIA

"Guaranteed"

INNER TUBES

"No. 503"

A high grade tube selling at a moderate price

For months the Pennsylvania Rubber Company has been experimenting on the development of a genuinely serviceable automobile tube which could be sold at a reasonable price. The Pennsylvania "No. 503" is the result.

Each Tube is Guaranteed

This tube has been so thoroughly tested, is so well made and of such high quality material that it carries an unqualified season's guarantee.

Pennsylvania "No. 503" Tubes are made in the most popular selling sizes :

28 x 3	32 x 3½	33 x 4
30 x 3	34 x 3½	34 x 4
30 x 3½	31 x 4	35 x 4
	32 x 4	

Persuant to the policy adopted by the Pennsylvania Rubber Company at the time of its re-organization, February 1st, 1910, we have contemplated an attractive margin of profit for the trade, in placing this tube on the market.

Jobbers and Dealers Desiring to Sell Automobile Inner Tubes for Profit Should Write Us.

PENNSYLVANIA RUBBER CO., Jeannette, Pa.

(Re-organized Feb. 1st, 1910)

BRANCHES

Pittsburgh, 505 Liberty Avenue
Chicago, 1004 Michigan Avenue

Detroit, 247 Jefferson Avenue
Minneapolis, 917 First Avenue, S.

Pennsylvania Rubber Co., of New York
New York City, 1700 Broadway

Pennsylvania Rubber Co., of California
San Francisco, 512-14 Mission Street
Los Angeles, 930 So. Main Street



PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

A. B. SWETLAND.....President
F. V. CLARK.....Secretary-Treasurer
R. G. BETTS.....Managing Editor
154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) . . . 10 Cents
Foreign and Canadian Subscriptions . . . \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, OCTOBER 12, 1911.

Factory Costs and Selling Costs.

Six years ago the automobile manufacturer who called to him his chief designer and said: "Go build me a car to sell for \$1,000 in 5,000 lots—and, mind you, a real automobile, too!" would have been carted off to a padded cell. Even at that comparatively late date most makers were still very much involved in embarrassing details of a purely mechanical nature. Nobody could be trusted to design a whole car on price and capacity specifications alone, the master builder had to plunge into the thing up to his elbows and himself help solve some of the many obtruding puzzles. The consequence was that the industry for the most part retained much of its old flavor of experimentalism.

Since that period vast strides have been made, however, and due passage of time has marked the growing ability of one manufacturer after another to reduce his product to any definitely assumed stand-

ards, and by the same token to increase his production rate without sacrifice of quality, but rather to the contrary. The change has transformed the maker himself from a mechanic to a business man, it has enabled him to assume broader views of trade requirements and trade conditions, and above all it has permitted him to study his market and built to its needs, rather than to strive to recoup his experimental costs by disposing of the labor of his own hands at the best price he could command. That transformation is one of the signal changes that has come over the industry during the period of its commercial upbuilding; it accounts for many things, and among them for modern methods of marketing the finished product.

With the passing of the era of "kid glove" salesmanship, naturally very many alterations in selling systems were introduced, but with them was developed in many cases a tendency to continue the heavy burden of costly sales buildings, with their elaborate salon salesroom effects. The modern automobile builder who also is a shrewd business man, however, is continually turning over in his mind the idea that selling costs have not yet been reduced to as low a relative level per machine as have building costs. There are many products which it costs much more to sell than it does to build, it is very true, but in this particular instance the notion clings that sales costs remain higher than they should. Hence the beginning of a new movement in the industry, which in all likelihood will be more clearly manifest in years to come and particularly in the great cities, where "overheads" are almost prohibitive.

The broad distinction of the new movement lies in the separation of garage, service and sales departments to whatever extent may be necessary, with the staple idea of conserving rental costs or their equivalent. In New York, Boston and other cities great service and assembling plants already have been built in accessible suburban districts, thus rendering possible legitimate economies in areas where land is worth more than its weight in gold. With proper administration the plan bodes no hindrance to the carrying on of business, but rather promises to facilitate it through permitting the more liberal use of floor space.

The tangible result, which at the present time is not so noticeable as it will be a couple of years hence, is that portions of

the big structures along the conventional "automobile row" will be turned to other uses than they now subserve. To the outsider the result may look like wholesale retrenchment, even an impoverished condition; actually it is an index of the best business acumen.

The enforced abandonment of the conference of State officials called by the Secretary of New York State is distinctly regrettable. The object, that of promoting uniform legislation and reaching a better basis for reciprocal relations, was a worthy one, and having a hall mark of authority such a conference must have carried some weight. But when the private map-selling corporation styling itself the Touring Club of America commenced tacking its name onto the project and endeavored to use it for advertising purposes, the failure of the conference was foreordained. New York's Secretary of State probably is not aware that shortly before his time the map sellers who employ such a high-sounding disguise induced a number of State officials to attend a similar conference, which served its intended purpose—that of advertising the so-called Touring Club of America and nothing more, unless to lay open the officials to the charge of frivolously wasting taxpayers' money. Once bitten, perhaps the State officials are now more than twice shy.

Of all the motor vehicles that ever pressed an asphalted street none are so remarkable as the touring cars and runabouts employed for municipal service, whether in large city or small. It is their cost of maintenance that makes them remarkable. Periodically, this item of expense affords conspicuous reading for the public, and it is certain that if motor cars were judged by such figures few of them would be sold; comparatively few people could afford them. Such publicity makes unpleasant reading from the view point of the automobile industry, and were it not so much the habit of the American taxpayer to subconsciously believe that "public office is private graft" real harm might be done; in that form of graft the municipally owned motor car has taken high rank. But at that and taking the whole range of graft and joy-riding into consideration, the wonder is that the cost of maintenance of these cars should prove so astoundingly excessive.



Saginaw, Mich.—McNailey Vulcanizing Co., under Michigan laws, with \$1,000 capital.

Davenport, Iowa—Davenport Auto Co., under Iowa laws, with \$10,000 capital; to deal in automobiles. Corporators—August Lebermann, Charles A. Frey.

Lafayette, Ind.—Ross Machine Co., under Indiana laws, with \$15,000 capital; to manufacture automobile parts. Corporators—William, David E., Linn C. and Edward A. Ross.

El Paso, Texas—Rio Grande Automobile Co., under Texas laws, with \$5,000 capital; to deal in automobiles and accessories. Corporators—Max Moye, W. F. Carter, Jr., John M. Wyatt.

Chicago, Ill.—Pathfinder Motor Car Co., under Illinois laws, with \$10,000 capital; to deal in automobiles and motor vehicles. Corporators—R. G. Vawter, Charles H. Latt, Edmond W. Pottle.

Charleston, S. C.—The Robinson Automobile Co., under South Carolina laws, with \$10,000 capital; to deal in automobiles and other motor vehicles. Corporators—J. T. Robinson, B. F. Robinson.

Utica, N. Y.—Thompson-Creedon Co., under New York laws, with \$5,000 capital; to deal in motor vehicles. Corporators—William Thompson, Iliou, N. Y.; Dennis P. Creedon, Ella Creedon, of Utica.

Paducah, Ky.—Kentucky Auto & Machine Co., under Kentucky laws, with \$5,000 capital; to deal in automobile supplies, sell, store and repair automobiles. Corporators—F. M. Fisher, R. G. Fisher, W. F. Paxton.

New York City, N. Y.—The Beasley Co., under Delaware laws, with \$150,000 capital; to manufacture and deal in automobiles. Corporators—R. F. Pratt, Jersey City, N. J.; A. E. Beasley, T. Moynan, of New York City.

St. Louis, Mo.—Cochrane Motor Sales Co., under Missouri laws, with \$5,000 capital; to deal in automobiles and supplies. Corporators—O. E. Cochrane, 48 shares; L. M. Dunn, N. F. Kelleher, one share each.

Buffalo, N. Y.—Buffalo Reliable Garage Co., under New York laws, with \$2,000 capital; to maintain a garage and deal in automobiles. Corporators—John T. Timmerman, Irving L. Carpenter, Charles H. Cutting.

Memphis, Tenn.—The Memphis Motor Co., under Tennessee laws, with \$12,500 capital; to deal in motor vehicles and accessories. Corporators—J. T. Fisher, D. M. Armstrong, A. Goodman, Walter Berry, T. K. Creson.

Grand Rapids, Mich.—Lewis Specialty Co., under Michigan laws, with \$5,000 capital; to deal in automobiles, motorboat parts and accessories. Corporators—James M. Hynes, Richard Shoemaker, R. H. Shoemaker, C. E. Lewis.

Newark, O.—Blair Manufacturing Co., under Ohio laws, with \$300,000 capital; to manufacture and deal in automobiles and supplies. Corporators—Frank M. Blair, John R. McCune, Willis A. Robbins Edwin C. Wright, Harry H. Baird.

Camden, N. J.—New Jersey Automobile and Supply Co., under New Jersey laws, with \$125,000 capital; to manufacture and deal in automobiles and other motor vehicles. Corporators—H. Morgan Hatch, J. R. Mick, Wilfred B. Wolcott.

Memphis, Tenn.—Chickasaw Motor Car Co., under Tennessee laws, with \$25,000 capital; to deal in motors and motor vehicles and supplies. Corporators—Carroll P. Cooper, Simpson T. Spears, J. W. Leftwich, N. Hill Martin, R. B. Martin.

Providence, R. I.—Providence Motor Car Co., under Rhode Island laws, with \$25,000 capital; to deal in automobiles and maintain a garage. Corporators—William A. McSoley, Alice Stanton, of Warren, R. I.; John A. McDonald, of Providence.

St. Louis, Mo.—Simplex Automobile Co., under Missouri laws, with \$20,000 capital; to deal in automobiles, motor vehicles and supplies. Corporators—J. D. Wooster Lambert, Edward A. Faust, C. Drummond Jones, Knox Taussig, Thomas S. McPeeters.

Philadelphia, Pa.—The Philadelphia Fritchle Co., under Delaware laws, with \$125,000 capital; to deal in automobiles and vehicles propelled by motor power. Corporators—Edward G. Johns, Don Wood, both of New York; Willis G. Hillman, Jersey City, N. J.

Pittsburg, Pa.—Premier Motor Co., under West Virginia laws, with \$25,000 capital; to manufacture automobiles and maintain a garage. Corporators—W. R. Clifton, A. C. Osburn, of Beaver, Pa.; H. A. Wilder, B. J. Ross, C. S. Forkum, P. M. Moore, L. H. Pyle, all of Woodlawn, Pa.; C. H. Martin, of Pittsburg.

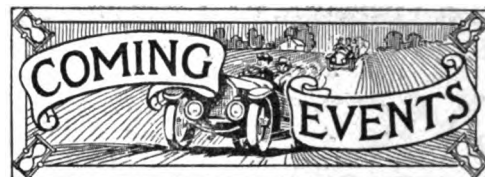
Old Orchard, Me.—The Old Orchard Automobile Association, under Maine laws, to promote automobile racing. No capital. Corporators—Fred C. Goodwin, Walter J. Gilpatric, Percy N. H. Lombard, Charles H. Campbell, William J. Mewer, William M. Davis, Azro D. Morse, William L. White, Charles E. Goodwin.

Increases of Capital.

Birmingham, Ala.—Dreenen Motor Car Co., from \$5,000 to \$50,000.

Pendleton, Ind.—Forse Manufacturing Co., from \$10,000 to \$25,000.

Ft. Wayne, Ind.—Ft. Wayne Auto Motor Co., from \$50,000 to \$100,000.



October 9-13, Denver, Colo.—Denver Motor Club's reliability tour.

October 11-18, San Francisco, Cal.—Reliability contest.

October 12-22, Berlin, Germany—International automobile show in Exhibition Hall, Zoological Garden.

October 13-14, Atlanta, Ga.—Racemeet under management H. C. George.

October 14, Santa Monica, Cal.—Santa Monica road races under auspices of Santa Monica Motor Car Dealers' Association.

October 14-25, New York City to Jacksonville, Fla.—American Automobile Association's eighth annual national reliability tour for the Glidden trophy.

October 16-18, Harrisburg, Pa.—Reliability contest under auspices Motor Club of Harrisburg.

October 27-November 3, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

October 28, Newark, N. J.—Newark Motor Club's reliability contest.

November 1, Waco, Texas—Racemeet under auspices Waco Automobile Club.

November 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

Nov. 3-11, London, England—Society of Motor Manufacturers' and Traders' annual show in Olympia Hall.

November 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

November 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

November 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

November 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

November 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

November 30, Los Angeles, Cal.—Race-meet at Los Angeles Motordrome.

December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

January 6-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual show in Grand Central Palace.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

"FALL OPENING" MADE MEMORABLE

**Chicago Dealers Do Themselves Proud—
Week of Illumination and Pageantry—
Mrs. O'Leary's Cow Remembered.**

Chicago's automobile row now is fairly rocking in the glory of its second fall opening week, which, for purposes of publicity, is termed a local show. A show it is in matter of fact, but such only in the sense

dence that Monday was the 40th anniversary of the historic Chicago fire. "Fire Prevention Day," arranged in commemoration of that event, was celebrated by a parade of fire-fighting machinery, ancient and modern, in which a goodly number of automobiles of various patterns took part; while the chief figures of interest were the characters of the renowned Mrs. O'Leary and her cow, which later took part in the symbolic burning of a replica of the O'Leary barn, where the great conflagra-

tion was the sponsor for the Fire Prevention program and parade of Monday. Hundreds of motorists constantly parade the decorated section of the city viewing the "sights" from their cars, while the conception of an "endless demonstration" is carried out by affording motor transportation from end to end of the "show" for such as are without cars of their own. To the busy normal traffic of the thoroughfare also is added a liberal sprinkling of demonstrating cars constantly being circulated by the



NIGHT SCENE ON MICHIGAN AVENUE, CHICAGO'S "AUTOMOBILE ROW," SHOWING ILLUMINATION FOR "OPENING WEEK"

that it is a great pageant, the greatest, in all probability, that that district ever has seen. Some 65 automobile agents and branch houses and 100 accessory, parts and sundries dealers, not to mention hotel keepers and merchants without the pale, are taking advantage of the period to display the advantages of their products. Street and building decorations add a festive air to the "row," while by all the arts and lures of free shows, souvenirs and the milder promised diversion of real interest in the wares displayed, the Chicago Automobile Trade Association and the individuals comprising it are striving to take advantage of the great advertising opportunity.

By no means the least important feature of the opening, which "opened" last Saturday, 7th inst., and will continue to the end of the present week, was the coinci-

tion is supposed to have originated. At seven o'clock Saturday evening N. H. Van Sicklen, president of the Trade association, was permitted the distinction of pressing a little button which set aglow the thousands of electric lights that festoon the two miles of Michigan avenue from Twelfth to Twentieth streets.

In addition to the decorations, which include ornamental pillars at street intersections connected by strings of lights, the committee of arrangements has provided the dignity of a daily program which consists principally in giving different designations to the succeeding days. Thus Saturday was Opening Day; Monday, Chicago Day; Tuesday, Wednesday and Thursday, respectively, Owners', Club and Dealers' Days; while Friday will be consecrated to the "Ladies" and Saturday to the Chicago Association of Commerce, which stood

dealers for the benefit of genuine and hypothetical "prospects."

Among the features of the individual store displays are the Studebaker motion picture exhibit of factory processes, stereopticon views of one of the Ford cars climbing Ben Nevis in Scotland—some 200 Ford agents being on hand for this and the opportunity of looking over the new models, by the way—a vehicle built by the elder Cunningham in 1939 and indirect ancestor of the present Cunningham line, an historic belt-driven Benz car, as well as other relics of the past New models of the Rambler, Locomobile, Packard, Speedwell, Overland and other well-known products are on view, while among entirely new cars seen for the first time are included the Flanders electric, Rayfield, Coey-Mitchell—the latter a brand new Chicago product—and King. Sectioned chas-

sis, demonstrating models of components, and partially finished bodies are much in evidence, while repair shops, garages and service stations are included in the open-house program.

French Exports Still Going Upward.

Exports of French automobiles still continue their marvelous growth, no less than \$23,915,600 worth of complete cars and chassis being sent out of France during the first eight months of the current year. Compared with the \$23,569,000 worth exported in the same period of 1910, this shows an increase of about \$350,000, largely due to the enormous gains in Algeria (\$600,000), Other Countries (\$580,000), Brazil (\$800,000), and Turkey (\$210,000), which more than made up for the losses sustained in the markets of the United States, the United Kingdom, Italy, Russia and Switzerland. In this respect the French export statistics form an interesting comparison with those of the United States, wherein the tendency towards Asia, South America and Oceania is visible.

French imports simultaneously took a slight upward trend, about \$700,000 worth of automobiles in excess of the 1910 quota being imported, the figures for the respective eight months of 1910 and 1911 amounting to \$1,208,000 and \$1,929,000.

Imports Actually Increased in August.

Although the total imports of automobiles into the United States for the eight months of the fiscal year ending August, 1911, discloses a further shrinkage, the month of August itself held more real sunshine for the import trade than has any other month for several years. France, especially, which showed such heavy losses during the past year, managed to hold her own, sending 31 cars, valued at \$74,513, as compared with 36 cars, valued at \$73,090, in the same month of the preceding year. The only country registering a loss is Italy, which sent 22 cars, valued at \$29,115, as against 30 cars, valued at \$55,890, in August, 1910. The figures for the eight months ending August, 1911, show a practical standstill, the small loss being due to the early months of the present year. 608 cars, valued at \$1,312,969, were imported during this period, as against 723 cars, valued at \$1,443,871 in 1910. Parts to the value of \$13,881 reached this country in August, 1911, showing a gain of 47 per cent. over the same month of 1910.

Kansas City Dealers Elect Leaders.

The Motor Car Trades Association of Kansas City, Mo., has elected the following officers for the ensuing twelve months: President, J. Frank Witwer; secretary, R. C. Greenlease; treasurer, Julius G. Kinsten; directors, J. Frank Martin, E. P. Moriarty, Neslon Haynes, Harry Bruening; show committee, Teddy Dey, J. Frank Martin, Nelson Haynes, R. C. Greenlease, Julius Kinsten.

TWO DAYS TRUCK TEST IN FRISCO

Twenty-one Vehicles Participated and But One Failed to Finish—Minor Troubles Caused Penalizations.

The first reliability contest for commercial vehicles which natives of Northern California have witnessed was finished in San Francisco on the 5th inst. The San Francisco Examiner sponsored the affair and it was not an exceedingly strenuous one despite the fact that part of the program embraced a climb to the summit of Twin Peaks, which is one of the city's many steep hills. The drivers of 21 trucks of various sizes and makes participated in the run, which was started on the 4th inst., and stopped the same night, to be continued the following morning and finished on the afternoon of the 5th inst.

The trucks which were started and their drivers were as follows:

White	W. Slimmon
White	R. M. Beagle
White	Wm. Wagner
White	P. M. Melchert
White	W. K. Beagle
Federal	P. Nichols
Franklin	H. J. Boxell
Brush	E. Fitzgerald
Buick	C. A. McGee
Lewis	F. H. Ely
Reliance	G. W. Knight
Gramm	R. W. Dunn
Speedwell	J. Gordon
Pierce-Arrow	C. E. Adams
Pope-Hartford	J. Fleming
Grabowsky	C. Schultz
Kelly	B. Grant
Autocar	W. Hammerson
Reo	D. W. McVan
Indian	W. G. Collins
Packard	H. Phillips

The first day's journey consisted of a run down the peninsula to San Jose and return, a distance of a little under 100 miles, and though the roads traversed were in fairly good condition, it was unofficially reported that but 11 of the trucks survived with perfect scores. One of them, the Reliance, was withdrawn because it became overheated and the driver lost so much time that he decided to quit.

The clean score trucks were as follows, though the referee has not yet completed his labors and it is possible that a number of changes may be made: Four of the five Whites, Buick, Reo, Speedwell, Packard, Autocar, Gramm and Brush. Subsequently the Pierce-Arrow truck also was given a clean bill of health, the referee deeming the insertion of a wooden plug in the muffler not sufficient cause for penalization. The others that got into trouble and the reasons therefor were: Pope-Hartford, lost gasoline pipe connection; Lewis, broke radiator spring; Federal, broke steering arm; Franklin, lost toggle joint; Grabowsky, leaky gasoline tank; Reliance, carburettor trouble and brake bands caught fire; Indian, lost mudguard

screw; White, ran out of water and overheated.

On the morning of the second day, the trucks were preceded by a guard of mounted police and run 21 miles through the city streets to show them off, after which they were garaged over the noon hour. The ascent of Twin Peaks in the afternoon presented no particular difficulty to any of the trucks. There was no time limit imposed for the climb and they one and all reached the top without mishap. Arrived at the summit, a rigid technical examination was made and the trucks then were started back to the official checking station.

Repairer Held Responsible for Road Test.

The general belief that a man is responsible for goods which he may undertake to repair, while they are in his possession, once more received judicial cognizance in Newark, N. J., last week, when the F. C. L. Auto Co. was sentenced to pay \$628 damages to Albert G. Brooker, whose automobile was wrecked by an employe of the garage. The complaint charged that the Martin company had sent one of its mechanics to give the Brooker automobile a road test, in order to determine whether certain repairs made in its garage were satisfactory, and that on this testing trip the mechanic wrecked the car and himself was seriously injured. When Brooker sued the company for the full value of the car the defendant claimed that it was not responsible for accidents during a road test, and tried to show that "trade custom" did not entail such responsibility. The jury thought differently and not only awarded the plaintiff the damages asked, but also gave him the wreck of the car.

Gary to Wrest Greatness From Detroit!

Gary, Ind., which only a few weeks ago heard that "one of the largest automobile manufacturing companies in Detroit" was anxious to locate "in its midst," has heard that an "old-established automobile company" in Cleveland, O., is possessed of anxiety of the same sort. Unless a suitable site and buildings can be obtained, the identity of the Cleveland concern, as was the case with the Detroit movement, will remain a secret. If one cares to share the enthusiasm of the Gary Weekly Post, he can see Detroit's fame rapidly diminishing, for the Post has heard that "motor car experts have declared that Gary is the logical point for the manufacture and distribution of automobiles in the United States, and that it is designed to wrest the honors from Detroit in a very few years."

Stage Promoter Building His Own Road.

Harry L. Powell, of Mattoon, Ill., is constructing a concrete road between Tuscola and Mattoon and will establish an automobile interurban service between the two towns. The road is 16 feet wide and the automobiles will provide both passenger and freight service.

MOST GIGANTIC OF FIRE ENGINES

Huge Self-Propelling Pumping Apparatus To Be Employed in New York—Its Proportions and Its Scope.

Having found that it is possible to obtain gasoline fire engines in which the same motor that propels the outfit through the streets is employed to pump the water when the fire is reached, the City of New York shortly will place in service the huge Waterous motor driven pumping engine, which now forms a part of the Budget Exhibit and which, while not as yet accepted and paid for by the city, has

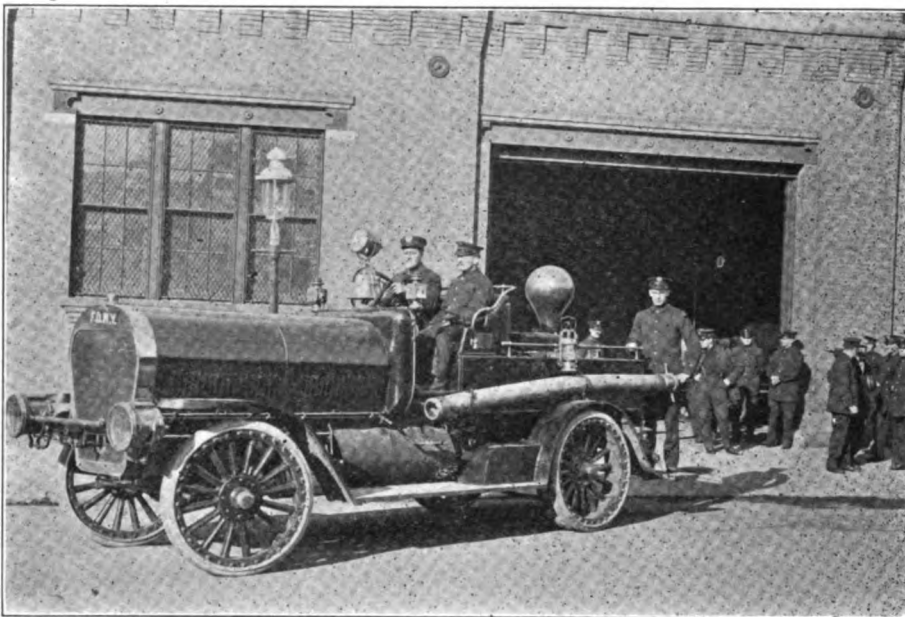
gallons, while engines of the first class pump 900 gallons.

If looks alone were the test, the engine, shown in the accompanying illustration, would pass on its very appearance, as it is a gigantic vehicle about 18 feet long over all, and having a wheelbase of 146 inches, with a tread of over 60 inches. The top of the bonnet is six feet from the ground, and the bonnet itself is between six and seven feet long, with six big cylinders almost filling the inside space, so that one can well understand why it should cost \$10,000. The wheels are 42 inches in diameter, with solid rubber tires five inches wide.

Thrilling as the sight may be to see a trio of fire horses plunging and tugging in

cams, which are all mounted on one long shaft over the cylinder heads, are moved out of position and out of action by a lateral movement of the camshaft itself. The air tank for the self-starting system is fed by a small four cylinder air compressor geared to the engine crankshaft. Air pressure for the fuel system is obtained from the same air tank, though greatly reduced through a governor. Ignition is by a dual system, with magneto and storage battery. Fuel is supplied by one carburetter, a Stromberg.

Power from the engine is conveyed to the three speed selective transmission through a four-point internal expanding clutch, and from the differential jackshaft to the rear wheels by side chain drive. The outfit having reached the fire, the pump, which in the rear portion, is driven by a direct, locked shaft drive from the engine, the change gear and rear wheel drive being entirely out of action. The pump, which is single acting and has four cylinders, $4\frac{1}{4} \times 8$, is arranged as a V over the powershaft extending lengthwise of the vehicle, with two cylinders on a side. It has shown in the tests a capacity of 744 gallons per minute at 128.3 pounds pressure, and 279.6 gallons at 230 pounds pressure, enough pressure to throw water 225 feet above the ground. In traveling, the cooling of the engine is dependent on the large radiator at the front and the circulating pump, but in pumping at a fire the engine is cooled by tapping the flow of cold water from the big water pump. The fuel tank holds 40 gallons of gasoline, sufficient for three hours steady pumping without refilling.



NEW YORK'S GIGANTIC 126 HORSEPOWER FIRE ENGINE

passed the necessary tests. The big engine, which is of the type that in the future is to represent the "heavy artillery" of the department's equipment when the latter becomes more wholly "motorized," has passed all the acceptance tests, and the department has anticipated its actual purchase to the extent of printing a picture of the new engine at the top of a card of warning "Don't's," issued to the public as an aid to fire prevention.

While New York's fire department already has about 30 motor vehicles in service, including runabouts and touring cars for the chiefs, hose wagons, a water tower, a gasoline propelled steamer, high pressure hose wagons and some delivery trucks, it has obtained a special appropriation of over \$700,000 which shortly will be available for the purchase of more motor fire apparatus, and this purchase is to include a representation of the new, all-gasoline fire engines.

The Waterous engine has a rated pumping capacity of 700 gallons per minute, equaling a steam fire engine of the second class, the latter also being rated at 700

their efforts to haul a glittering and smoke-belching steamer to a fire at high speed, the animals are only able to do about 16 miles an hour in the first block, after which their speed rapidly declines to a maximum of 12 miles an hour. In contrast to this, the new engine, despite the fact that it weighs 13,600 pounds, is able to do 40 miles an hour in a pinch, though the department has fixed 30 miles an hour as the maximum at which it shall be operated, probably out of consideration for the street pavements, which would soon be ruined by seven tons going at 40 miles an hour.

By reason of the special nature of its service, the power plant has been made self-starting. The cylinders, which have a bore and stroke of $7\frac{1}{4} \times 8$, are fitted with special cam-operated inlet valves for compressed air from a high pressure tank, so that when the air line is opened to start the engine, the air automatically is admitted to those of the six cylinders in which the piston is in the working stroke position. After the engine has been thus "turned over" as long as is necessary to get it running on its own power, the air inlet

Dust Not Due to Tire Suction.

According to a prominent automobile engineer, the idea that dust is raised by pneumatic tires as the result of suction is all wrong. It is a palpable fallacy, he asseverates, and explains that the rubber of the tire is stretched as it rolls and that on rising from the ground it reverts rapidly to its unstretched condition, giving a slight backward flick to the dusty binder which has become imbedded in the tread during its brief moment of forcible contact with the road. "This flick," he continues, "is additional to the kick given by the driven wheels when more power is transmitted through them than the adhesion between the tire and the road warrants. The flick will certainly pick out and throw away fine, blinding dust, raising it an inch or two above the road. This is the explanation of that which has been called the suction of the tire. The fall of pressure caused by the car in its wake owing to its bad "lines" is a very slight one, but covers a large volume of air, and it is this quasi-vacuous space which is refilled by eddying currents flowing in to restore the equilibrium of atmospheric pressure which picks up and raises to a great height the dust which has been loosened by the flick and kick of the tire."

GETS GASOLENE FROM NATURAL GAS

Condensation Process Gives Rise to New Source of Valuable Fuel—Simple Equipment That is Employed.

Within a year there has sprung up in Western Pennsylvania, Ohio and West Virginia, an industry which in the not far distant future is likely to reach such proportions as to have a well defined bearing on the automobile industry. It embraces the production by condensation of gasolene from natural gas. That gasolene and other equally valuable volatile liquids exist in practically all natural gas and that they can be extracted in such quantity and with such facility as to make their production of commercial value has been known for some time. It is only recently, however, that the industry has become of sufficient importance to attract attention.

Today there are dozens of small compressor plants distributed over the great oil and gas fields which are being operated profitably. As with other pioneer works many of the real problems still remain to be solved but in an illuminative article in the *Industrial World*, Frank P. Peterson, an engineer, who has been actively engaged in the industry, tells something of the progress which has been made and its commercial possibilities.

"It is a little difficult to trace to its very inception the starting of the industrial movement to recover by condensation the gasolene or hydro-carbon condensate carried suspended in the heavy casing head of oil well gases in which it is most commonly and plentifully found," he says. "But little publicity was given to the early ventures along the lines that led to success, each experimenter holding to the belief that strong latent possibilities for wealth lay in his ability to keep quiet and either sell at profit the experience gained in the successful development of his ideas, or limit the production of a very valuable by-product to his own properties.

"All this was well enough and perfectly consistent with the keen perception of the man wide awake to the possibilities of such a promising industry, if—and that 'if' was a most annoying affair—a means only could be devised for a right application of the process in the avoidance of disastrous mistakes in what to undertake and what to let alone. It developed that certain gases on the dividing line between those that could be strongly suspected of being productive and non-productive were quite productive. This naturally led back to the conclusion that all gases might be productive.

"When the chemist was called into the question, he frankly confessed that no precedent had been worked out that could throw any light on the subject so far as the laboratory was involved. The experi-

menter was left pretty much to his own resources, to the alternative of blindly guessing at the matter or expensive investigation of the desirability of every gas which it was proposed to work.

"Early development along similar general lines was carried out in southern New York and in Pennsylvania at three or four different points and at Sisterville, W. Va. In each of these localities the pioneers seeking to develop the industry were peculiarly favored with those physical field environments that contribute most effectively to easy and assured success in an undertaking. The age of the wells, the general favorable formation of the producing strata, the character of the oil and gas product and in all but one or two instances the prior application of gas pumping or vacuum treatment of the wells to increase oil production constituted a generally very favorable situation to take hold of for easy solution. It is particularly worthy of mention that in the Sisterville district in West Virginia, the accumulation of "drip" formation of a good grade of gasolene was so persistent as to demand attention of operators and to indicate so plainly further possibilities as to make the assumption unmistakable of greater possibilities for only slight application of any means which would further favor the natural tendency of the heavy gases to condense.

"In confirmation of these conclusions there is at present one well on a lot almost in the heart of Sisterville which is being operated for its gasolene product in a most desirable and profitable manner. A gas pump sustaining $27\frac{1}{2}$ points, or inches mercury vacuum, devotes its entire attention to the one well. The same engine that drives the gas pump also drives a small single stage compressor which compresses the gas to 75 pounds per square inch. With a very simple set of water cooled condensing coils and separating traps, the entire gas product from this well is condensable into gasolene of about 90 degrees Beaume. The output is approximately one drum of 50 gallons daily.

Recent information is to the effect that in one of the favored localities of Pennsylvania some wells are producing in excess of $1\frac{1}{4}$ barrels of condensate daily, by the application of gas pump treatment alone, in which only a very few pounds condensing pressures are employed.

"These rare exceptions, however, are only indicative of the plainly laid leads of nature for the guidance of the experimenter to the results which are so plainly possible. They do not, to any considerable degree, indicate the possibilities of production on the large scale or to the extent which will eventually prevail. These leads, however, offered the suggestions which led to the conception of the ultimate possibilities and the breadth of the industry.

"Through their development, they suggested not only that the heavy gases treated contained a considerable series of hydro-

carbons, which were held in a state of mechanical suspension, and were reducible to liquid approximating commercial gasolene, but that they carried a still further heavy series that were reducible also to liquid, which, if not recognizable as commercial gasolene, is plainly recognizable as a similar light condensate, having a commercial value comparable to the most desirable light refinery products which it has heretofore been possible to produce. . . .

"Many discussions have arisen over the carrying capacity in gallons per 1,000 feet of gasolene in gas. Many of the natural gas condensates approximate in volume, weight, or specific gravity, those same characteristics for liquid butane. Butane is either liquid or gas as temperature and pressure conditions may depend.

"As a gas it weighs almost exactly twice as much as the same volume of air. As a liquid, it weighs almost exactly (a little over) five pounds per gallon. Air weighs at sea level pressure and zero Fahrenheit temperature, 86 pounds per 1,000 cubic feet. Isn't it as easy as a row of pins to see that 1,000 feet of butane would produce about 34 gallons of 'gasolene'?"

"Then when the specific gravity of a gas runs up in the neighborhood of one and a half as referred to air we may easily suspect that more than $3\frac{1}{2}$ gallons of condensate can be recovered from it. However, it is not common practice on the part of the analyst to estimate the maximum apparent value of samples.

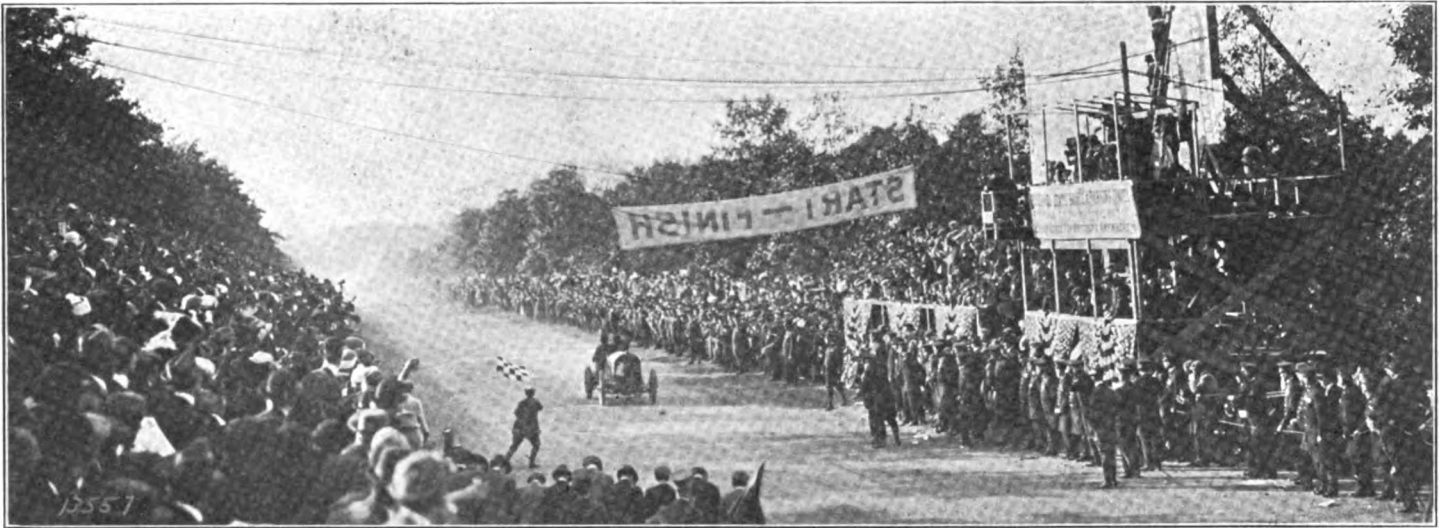
"The simplest form of equipment yet of a compressor, cooling or condensing employed in the process combines the use coils, separating traps and final means of resistance, such as a spring relief valve used to maintain the head pressure against which the compressor and the condensing system is made to work. Quite a few variations in the form of condensing appliances have been tried, but the above description covers the basic functions of operation involved and on which the success of any operation must primarily depend.

"More extended temperature reduction than is possible with the mean surrounding temperatures of air or water may be obtained by allowing the discharge gas at the end of the condensing process to rapidly expand to a lower pressure and greater volume, in contact with radiating surfaces containing the compressed gas. This method has been pretty generally adopted by those who have been most active in the advancement of the industry.

"While the total volume of the natural condensate available for use is going to be small, comparatively," he says in conclusion, "the fact that it brings back into available place at least its own volume of unavailable refinery product must not be overlooked. As a result the motor consumer may hope to breathe freely for one or two more seasons before his purse must eventually feel the final call to meet the inevitable shortage."

Bergdoll Sets New Marks for Fairmount Park

Philadelphian Bears Out the Promise He Displayed in Last Year's Race and Triumphs in Superb Style—"Lost" Mechanics Lead to Protests and Transfer Second Honors from Wishart to Mulford—Immense Crowd Views Well Managed Contest.



THE SCENE WHEN BERGDOLL FLASHED ACROSS THE LINE A VICTOR

Erwin R. Bergdoll is a Philadelphian but he certainly knows how to "get a gait on." On Monday, 9th inst., he struck a gait that was faster than the natives of that Pennsylvania city ever had seen. A little better than 61 miles an hour he made in the fourth annual running of the Fairmount Park race, and he won the big car class by a comfortable margin. He covered the 202½ miles—25 laps of the 8.1 miles Park course—with the same Benz he drove last year, in 198 minutes and 41⅓ seconds.

As a matter of fact he had no contestants in his class after the third round. Lee "Oldfield's" Fiat was withdrawn before the race because in practice the expressed displeasure of the crowds hurt his feelings, it is said, and J. Fred. Betz, in the other Fiat, retired soon after the second lap with a broken connecting rod. The drivers in the other classes, however, gave Bergdoll all the race he was looking for. But he liked it. He not only broke the record for the journey, which stood at 3:29:07.88 and was made last year by Len Zengle with a Chadwick, but he also twice lowered the record for a lap, and just to show that it was not a fluke he later equaled his own record lap time. Before Bergdoll started on Monday, Ray Harroun held the lap record of 7:38 with a Marmon, and he made it last year. But Bergdoll broke this easily in his very first round; his time was 7:34. It was in the second lap that he broke his newly established record. Seven minutes and 28 seconds is the record now and it figures out at 65.09 miles an hour.

Spencer Wishart, who is reputed to be

wealthy, and who is called an amateur because he drives automobiles for the fun of the thing, made the next best time with his Mercedes, though later he was disqualified because his mechanic was not fast enough and he left him behind for part of a lap. His time was 3:20:11.42, which is just a little over a minute and 41 seconds



ERWIN BERGDOLL'S \$3,500 SMILE

faster than Ralph Mulford drove his Lozier, and as he, Mulford, was the next man to finish, he was pronounced the winner and given the \$1,000 prize offered to the one who beat all the rest in the class, which was for cars of from 451 to 600 inches.

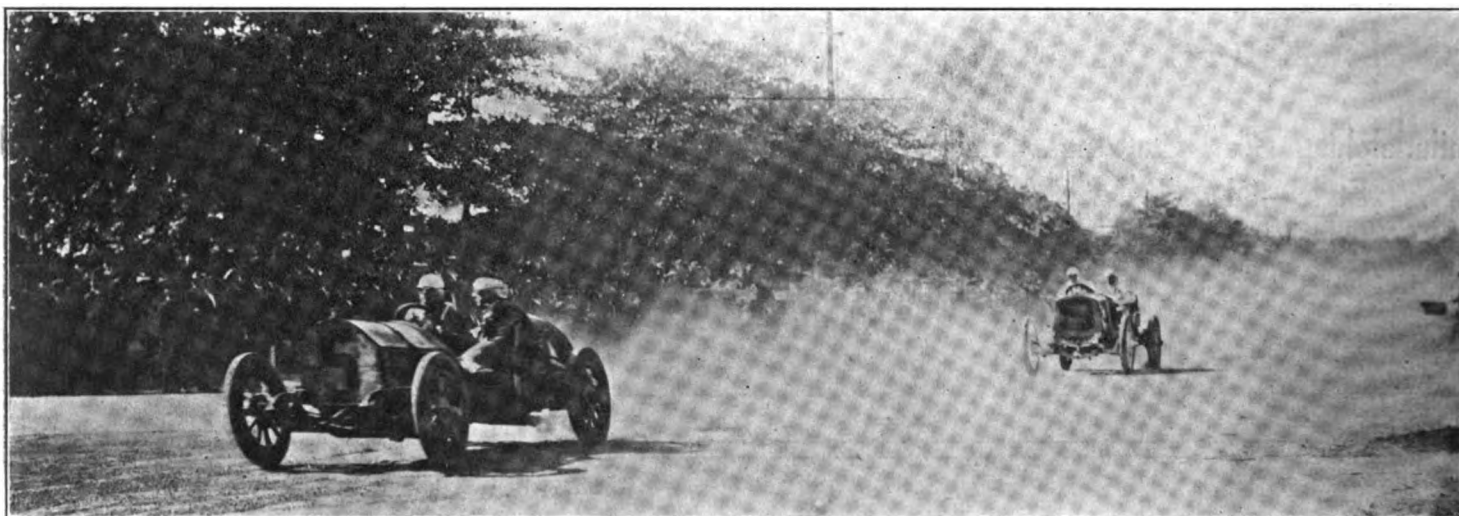
The race this year was four races within itself, instead of five, as was the case last year. The race for cars in the "baby" class—161-230 inches—was dropped. One thousand dollars was the prize in each of

the four divisions, with \$2,500 added for the one who made the fastest time regardless of class. The winners in the respective divisions and their times were as follows:

Division 6C—601-750 inches.	
Erwin Bergdoll, Benz.....	3:18:41.35
Division 5C—451-600 inches.	
Ralph Mulford, Lozier.....	3:21:52.78
Division 4C—301-450 inches.	
Louis Disbrow, National.....	3:28:22.32
Division 3C—231-300 inches.	
Hughie Hughes, Mercer.....	3:29:45.30

The race itself is decidedly different from any other. In the first place it is the only one in the East in which municipal authorities take an active hand. Nominally the Quaker City Motor Club is the promoter, but the City of Philadelphia keeps a watchful eye over proceedings, for the biggest portion of the "gate" receipts goes to Philadelphia charities. In the second place, it is run in a public park. The biggest part of the 8.1 miles course is in Fairmount Park, and it is notoriously the most tortuous over which races are held.

That it was lightning fast on Monday was evidenced by the fact that the average speed was increased from 58 miles an hour to 61. Opinions differed regarding the condition of the course on Saturday, which was the day the race originally was scheduled to occur, and because of this a new record of another kind was established. For the first time since the Fairmount Park race was inaugurated four years ago, a postponement was declared. Rain on Friday night had soaked the roads, and after



WHEN THE CROWD BUZZED—GRANT (LOZIER) CLOSING UP ON DE PALMA (MERCER)

Summary of the Quaker City Automobile Club's 202½ Mile

				DIVISION 6C—PISTON DISPLACEMENT 6							
No.	Driver.	Car.	Horsepower.	1	2	3	4	5	6	7	8
8	E. Bergdoll	Benz	90	7:34	15:02	22:41	30:28	38:19	46:02	53:30	61:00
15	J. Fred Betz	Fiat	90	7:52	15:41	Withdrew—broken connecting rod.					
1	Lee "Oldfield"	Fiat	90	Did not start.							
				DIVISION 5C—PISTON DISPLACEMENT 4							
*17	Spencer Wishart	Mercedes	90	7:52	15:40	23:30	31:26	39:19	47:12	55:06	63:00
3	Ralph Mulford	Lozier	46	7:55	15:47	23:40	31:34	39:30	47:32	55:23	63:11
2	Len Zengle	National	50	7:51	15:40	27:43	35:38	43:34	51:27	59:15	67:00
9	Harry Grant	Lozier	46	8:17	16:25	24:34	32:41	40:51	48:58	57:02	65:00
18	Willie Wallace	Mercedes	90	8:27	16:41	24:59	33:19	41:31	49:44	57:57	66:00
				DIVISION 4C—PISTON DISPLACEMENT 3							
16	Louis Disbrow	National	40	8:30	16:46	24:58	33:12	41:24	49:32	57:38	65:44
10	Gil Anderson	Stutz	36	9:09	17:55	26:36	35:24	44:18	53:22	62:18	71:00
6	Donald Herr	National	40	8:38	17:09	25:33	34:04	42:35	51:03	59:16	67:30
				DIVISION 3C—PISTON DISPLACEMENT 2							
11	Hughie Hughes	Mercer	30	8:21	16:37	24:51	33:06	41:15	49:23	57:36	65:44
19	H. S. Matthews	Ohio	30	9:58	19:54	29:49	39:39	49:23	59:04	68:47	79:00
12	George Parker	Ohio	30	9:29	18:46	27:47	36:49	45:44	54:35	76:43	85:30
5	Ralph De Palma	Mercer	30	8:20	16:49	25:05	33:22	41:38	49:55	58:11	66:22
7	Joe Jagersberger	Case	36	8:41	17:22	26:03	34:47	43:21	51:52	60:24	68:50
4	Charles Basle	Cole	30-40	9:34	18:58	28:22	37:42	47:39	57:45	Out—broken	
14	Grover Bergdoll	Bergdoll	40	Did not start.							
* Disqualified for not carrying mechanic for part of a lap.				† Running when race was called.							

* Disqualified for not carrying mechanic for part of a lap.

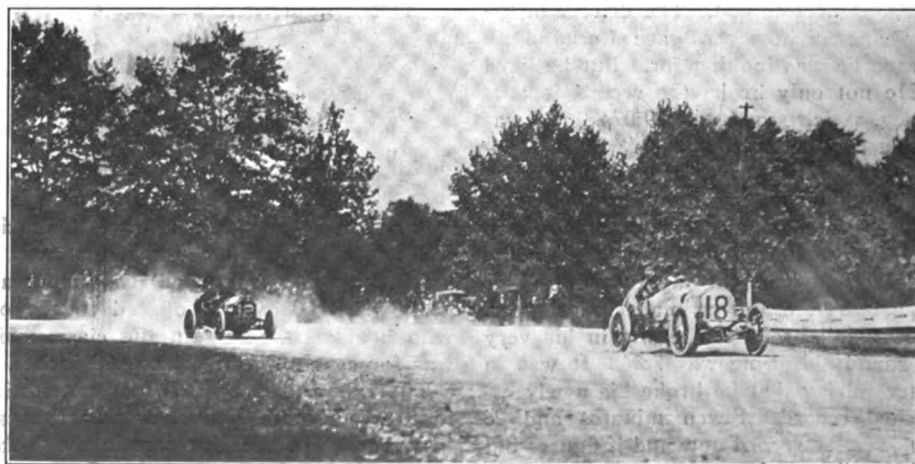
† Running when race was called.

a hurried trip over the course the officials decided not to take a chance and the crowds were sent home disgruntled, to return on Monday—provided it was clear. After it had been decided to postpone the race, several of the drivers, including De Palma, Disbrow, Hughes, Wishart and Basle, went over the course in a touring car, and expressed great dissatisfaction over the decision. In their opinion the race could have been held safely if it had merely been postponed for an hour or so, and they expressed their disapproval in no uncertain terms.

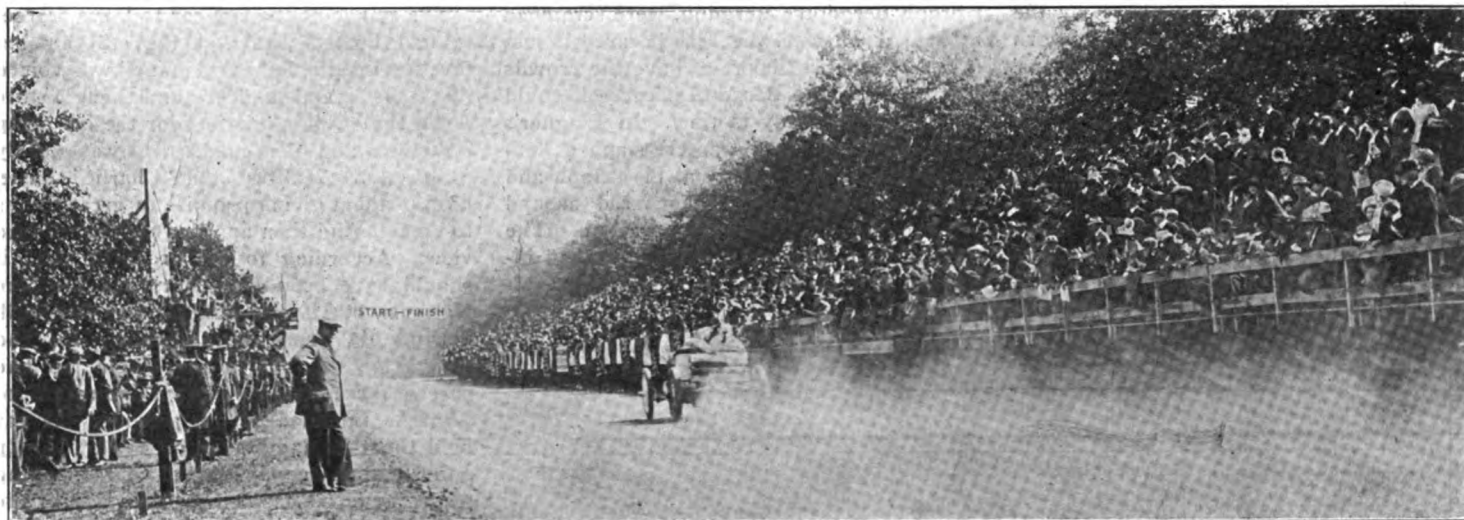
It was to no avail, however, and there was nothing for the crowds to do but to go home and think up new excuses to get another day off so that they could use their "rain checks." And there was a really tremendous crowd there, too. One New Yorker who was present remarked that there were more automobiles to the square inch in Philadelphia on Saturday than he

had ever seen before, and he ought to know for there are more than a few in New York. Even though the race was not

scheduled to start until noon, the course was lined by daylight, and still they came. Special trolleys and special trains dumped



WALLACE (MERCEDES) GIVES HIS DUST TO PARKER (OHIO)



REAR VIEW OF MULFORD (LOZIER) AND GENERAL VIEW OF GRANDSTANDS

Fairmount Park Race in Philadelphia, Pa., October 9, 1911**750 CUBIC INCHES—\$1,000 TO WINNER.**

9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Finish.
58:48	76:47	84:33	92:31	100:08	109:13	116:43	124:25	134:48	142:20	149:53	157:28	165:06	172:37	182:07	191:03	3:18:41.35

600 CUBIC INCHES—\$1,000 TO WINNER.

70:57	79:37	87:29	95:14	103:02	110:50	118:40	126:28	134:18	142:01	149:51	157:41	165:46	177:00	184:47	192:30	3:20:11.42
70:57	78:48	86:36	94:19	102:00	109:50	118:34	126:26	135:19	143:03	150:47	158:31	166:13	175:50	186:37	194:18	3:21:52.78
74:55	82:59	90:55	98:44	106:33	114:18	122:02	129:47	137:35	147:46	155:46	167:01	174:53	182:47	190:30	198:14	3:25:59.35
73:08	81:13	89:14	97:18	105:24	115:32	125:55	133:59	142:05	150:20	158:20	166:28	175:42	183:54	192:08	200:16	3:28:50.37
74:20	84:04	92:29	108:32	117:49	127:01	145:01	154:08	169:05	179:12	188:41	197:19	208:29	217:46	†		

450 CUBIC INCHES—\$1,000 TO WINNER.

73:57	82:07	90:15	98:16	106:24	114:30	122:35	131:12	141:00	149:18	158:57	167:09	175:22	183:37	191:52	199:59	3:28:22.32
80:21	89:20	98:02	106:40	115:22	124:03	132:48	141:42	150:30	159:14	168:09	176:00	185:26	194:21	203:03	211:45	3:40:23.05
75:42	84:00	94:49	103:29	111:46	120:01	128:14	136:30	144:48	153:10	161:30	169:47	178:01	186:23	195:12	211:57	3:40:33.87

300 CUBIC INCHES—\$1,000 TO WINNER.

74:05	82:24	90:39	98:53	107:03	115:10	123:14	131:29	139:50	150:24	158:55	166:49	175:24	183:56	192:35	201:14	3:29:45.30
88:57	98:44	108:24	118:13	127:50	137:35	147:22	157:03	166:44	176:22	186:09	195:49	205:35	215:21	†		
94:35	103:34	114:57	123:57	138:02	142:15	151:37	160:43	187:17	196:23	205:27	214:34	†				
74:31	82:37	90:45	98:54	107:17	115:40	125:42	148:16	156:43	165:06	173:28	182:01	191:36	201:38	Out.		
79:02	87:26	96:01	104:30	113:02	121:40	133:34	Out—hit post and broke spring.									

urter.

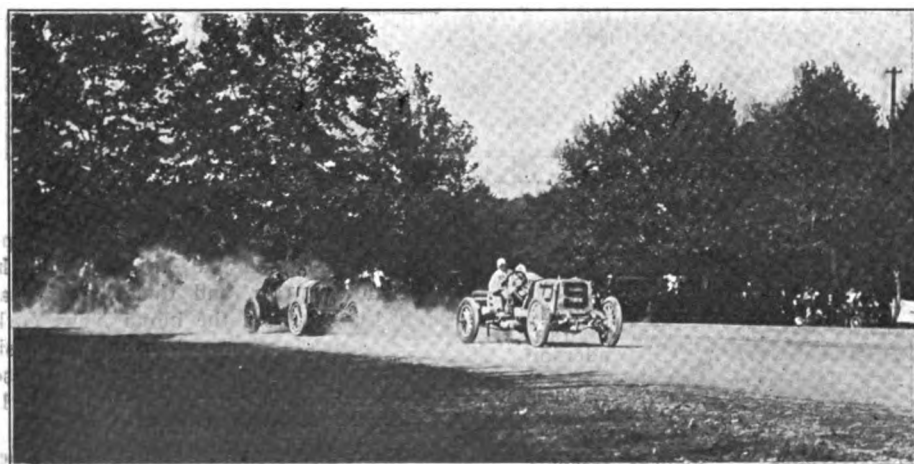
load after load of sightseers beside the course and returned for more. Long before the postponement was announced

there was a very substantial fringe of spectators leaning on the ropes that guarded the course, and the best part of it was that

they practically all came back on Monday.

"Must be a lot of persons out of work in Phillie," casually remarked one of the spectators as he gazed at the solid phalanx along the ropes. But they were pretty cheerful people, for the grounds looked as if a big picnic was in progress. Everywhere lunch baskets were in evidence and the number of Thermos bottles that were emptied was a caution. For the most part the bottles contained hot stuff—that is to say "hot" because at one time it had been in proximity to a fire—and it must have touched the right spot, for though the sun was shining brightly the air was chilly and winter overcoats were the rule rather than the exception.

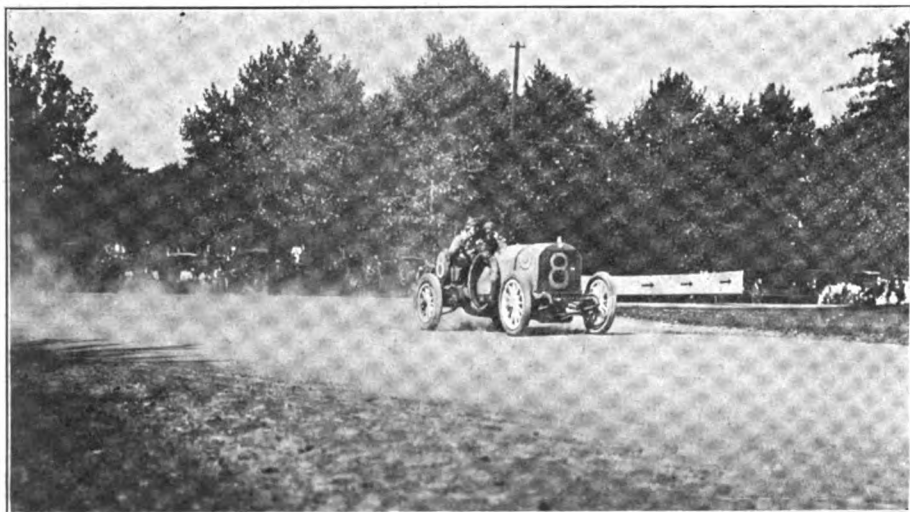
At the main grandstand—there were several others along the course—there was considerable activity from early morning till after the last car had been flagged. Preparations had to be made and an army of mechanics, officials, judges, timers



WHERE WISHART (MERCEDES) OVERTOOK GRANT (LOZIER)

and police made them. The police, by the way, was not a crowd of 'rookies' sworn in for the occasion and garbed in civilians' clothes and long clubs. It was the police of the City of Philadelphia, reinforced by the Pennsylvania State "rangers," and the way they performed their duties in keeping the crowds in check was a marvel. No one dared to doubt the majesty of the law—particularly when it was being enforced by a body of men whose average height was in the neighborhood of six feet—and no-

Gordon Bergdoll's Bergdoll, were scratched at the last minute, the Fiat because it just broke "Oldfield's" heart to have the crowds jeer him, and the Bergdoll because it could not be gotten ready in time. In Wagner's most approved style, Gantert slapped Zengle on the back promptly at high noon and he rushed away and disappeared around the first bend and the race was on. The rest of them were started at 20 second intervals, the order of start being as follows:



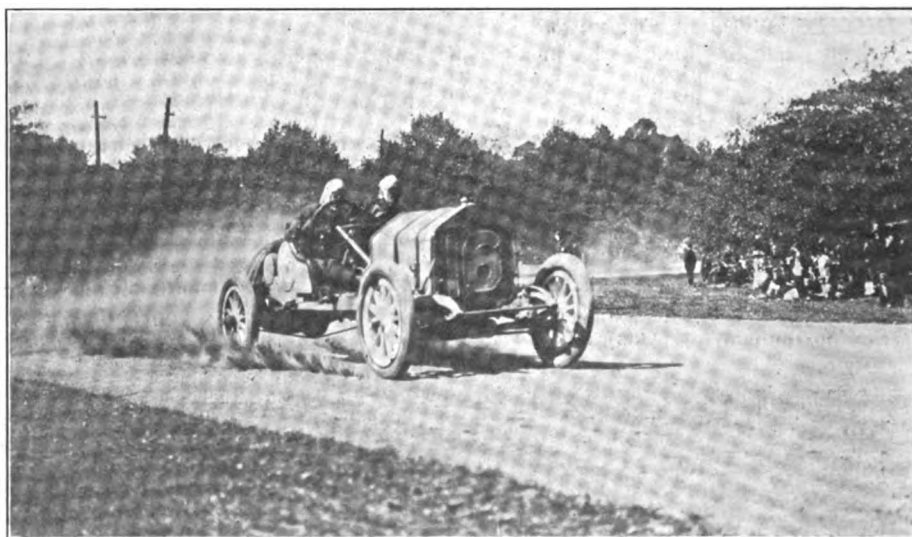
BERGDOLL ALONE IN HIS GLORY BUT GOING GREAT GUNS

body was naughty; they all "stayed put" and of course nobody was hurt. The Fairmount Park race has established quite a record in this respect, too. Never has any one been hurt badly enough to prevent him carrying on his regular duties afterwards. There have been a few bad spills, it is true, and there was one on Monday, but those concerned always have escaped with minor cuts and bruises. But in no case was the trouble the result of inefficiency on the part of the police.

As was the case last year, G. Hilton Gantert officiated at the start, though there was a fine young mix-up for a few days previous and nobody knew who was going to send the cars away. Fred. Wagner, who has started every other race of importance ever since any one can remember, was on hand with his paraphernalia, but Gantert was determined to show that he could wave a flag as well as Wagner ever did, so "Wag" let him have his way. At first he was intent on insisting on his "rights" as the A. A. A. official starter—whatever they may be—but according to his own statement, he "found so much personal opposition to himself" that he decided that discretion was the better part of valor and thereby lost one of the fat fees to which the A. A. A. has given him a monopoly. So Gantert waved the flags and struck just as many outre attitudes as Wagner and waved his arms in the same way.

This year there were only 16 starters as against 32 last year. Of the 18 that were entered, two, Lee "Oldfield's" Fiat and

- 2—National.....Len Zengle
- 3—Lozier.....Ralph Mulford
- 4—Cole.....Charles Basle



DISBROW (NATIONAL) IN THE ACT OF "SKIDDING" A TURN

- 5—Mercer.....Ralph De Palma
- 6—National.....Donald Herr
- 7—Case.....Joe Jagersberger
- 8—Benz.....Erwin Bergdoll
- 9—Lozier.....Harry Grant
- 10—Stutz.....Gil Anderson
- 11—Mercer.....Hughie Hughes
- 12—Ohio.....Geo. P. Parker
- 15—Fiat.....J. Fred Betz 3rd
- 16—National.....Louis Disbrow
- 17—Mercedes.....Spencer Wishart
- 18—Mercedes.....Willie Wallace
- 19—Ohio.....H. S. Matthews

The smoke of the last car to leave scarcely had floated away on the still air before the inevitable "Car coming" was voiced by the grandstandees, and Zengle tore down the stretch, his time for the lap being 7 minutes and 41 seconds. He was closely followed by Mulford and "Charlie" Basle, both of them giving promise of great things to come. And then another car flashed into view. According to the order of start it should have been Don Herr and his blue National, but it was not. It was Bergdoll, driving his Benz like a demon. He had started eighth, but in the single lap had passed three cars—a certain indication of what he intended to do, provided his car held together and stayed on the track. In point of time he was first, of course, having made the lap in faster time than any of the others, but that signified little to those in the grandstand, who wanted to see him first in position as well.

And very soon he was first in position, as well as in time. He caught and passed Mulford in the fifth lap—but not until Mulford had caught him and led the race for a couple of laps—and from then on to the 16th lap he gradually increased his lead until there was about two minutes between them. Then he had to stop for tires and gas and oil, and the balance of two minutes swung over to Mulford, who was driving his Lozier for all there was in it and taking desperate chances on the turns. Drive as he would, however, he could not maintain his lead, and he had to be content to see Bergdoll slowly but surely

creeping up on him. Bergdoll caught up in the 19th lap, because Mulford, too, had had to change a tire, and then he gradually slipped away from the blond New Yorker and was not headed to the finish, crossing the finish line fully 1 minute and 30.07 seconds ahead of Wishart, and 3 minute 11.43 seconds in front of Mulford.

But in the meantime things had been happening to the others. J. Fred Betz 3d, on whom Philadelphians had pinned a big

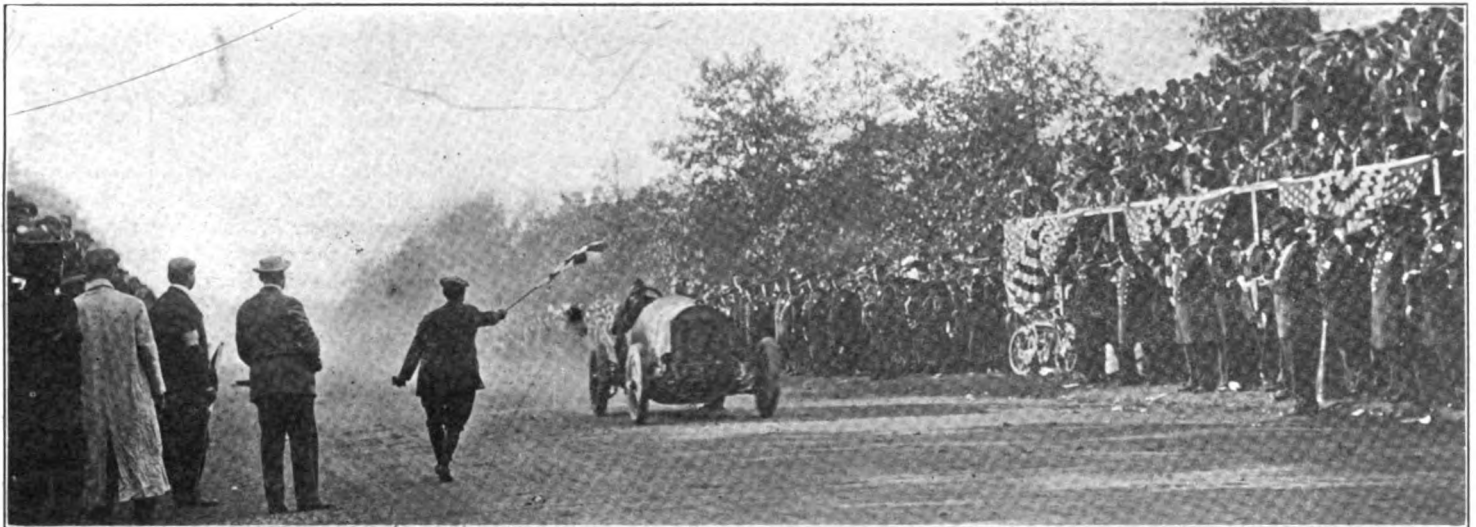
share of their faith, went out in the second lap because a connecting rod in his Fiat snapped. He was going well when it happened and gave promise of being "in the money" at the finish. Spencer Wishart, Mulford and Harry Grant had been having a great little battle between themselves. Wishart led the trio up to the ninth lap, when Mulford passed him by a narrow margin and led up to the 19th lap, when Wishart regained his lead and held it till the end. From the third lap to the 14th Willie Wallace (Mercedes) and Grant both led Zengle, but he had been coming fast and at the beginning of the 15th lap he caught them and assumed third place in the class division until the 20th lap, when he had to make a brief stop, and Grant took

Wishart in turn protested that Mulford had driven part of a lap without a mechanic, because in rounding a turn Mulford's man was catapulted out of his seat onto a pile of brush. But it was proven that Mulford went back after his mechanic and therefore had a man beside him during the whole of the race, and accordingly can scarcely be subject to official punishment.

Wishart stated his intention of appealing to the contest board of the A. A. A. against the decision of the referee, which was upheld by the contest committee of the Quaker City Motor Club, claiming that the disqualification was based on a trifling technicality; that he did not know for several seconds that his mechanic was not on the car, and that, when he finally missed him,

is nothing in the rules forbidding looking back, at times when the driver is alone in the car.

To Louis Disbrow, who drove the National which Koopman was supposed to have driven and who won in the 301-450 class, belongs the credit of having made the most consistent score. The greatest time between his fastest lap, which was the 12th, and his slowest, which was the 17th, was 1 minute and 44 seconds. He simply walked away from Anderson in the Stutz and Herr in the other National, until at the end he had opened up a gap of a little over 12 minutes between himself and the other two. The greatest race of this division was between Herr and Anderson. Herr led by the comfortable margin of nearly



PHILADELPHIA'S "ANTI-TRUST" STARTER GIVING THE CHECKFRED FLAG TO WISHART

up his place, Wallace having dropped away back till he was some 30 minutes behind the others.

Grant's lead, however, was brief, for in the next lap Zengle caught up with him and passed him. It was during this part of the race that "Spence" Wishart, as he affectionately is styled, gave the most spectacular exhibition of dare-devil driving that the Quaker City natives ever have seen. From the 18th lap, when he regained his lead from Mulford, he drove like a wild man. Dangerous curves held no terrors for him; he slewed around them at speeds estimated at 50 to 55 miles an hour, and once he went around a little faster. And that was the cause of his downfall. He ripped off a tire and had to stop and put on a new one. That was all right and it only took a fraction of a minute and Wishart was back in his seat, but the mechanic, oh, where was he? He was still tightening the rim, but Wishart decided to "open up," and open up he did, with the result that the mechanic was left to contemplate thin air. Wishart stopped at the pits and got another, but it sufficed him nothing, for Mulford protested that he had driven a part of a lap without a "helper," and the protest was upheld.

the rules prohibited him from looking back. Inquiry at the office of the A. A. A. on Wednesday resulted in the statement of one of the officials, that no appeal as yet had been received and that in his opinion there was no ground for appeal, as there

five minutes up to the very last lap, when he was forced to stop for tires and for gasoline and oil, and when he was able to get going again his lead was gone. In fact he was a little behind Anderson, who crossed the finish line just 10.82 seconds ahead of him.



"SHAKE I" SAYS MULFORD TO ZENGLE

To use a colloquialism, Hughie Hughes, with his Mercer, "had a cinch" in the light car class. He took the lead at the start and never was headed. As was to be expected, Ralph De Palma, who was his teammate and who took the place of Harvey Ringler, who had been injured several days before, was his most dangerous competitor. He ran second right up to the 22d lap, when engine trouble forced him out. In spite of previous troubles, not the least of which had to do with his tires, he came dangerously near to leading Hughes on several occasions. For instance, in the 10th lap he was only 0.07 seconds behind, and from then till the 12th lap he gradually gained till there was only the one-hundredth part of a second between the two Mercers. Thereafter, however, he dropped back and Hughes maintained the lead unchallenged.

George Matthews (Ohio), who finished second in point of elapsed time, was near-

ly 32 minutes behind Hughes when the race was called, but still was running well. Parker in the other Ohio also was well behind his team mate, and though his car was pounding along at a great rate he had only covered 20 laps when Hughes was given the checkered flag and the race was called. Joe Jagersberger in his snub-nosed Case ran well while he did run, and held third place up to the 15th lap, when he ran into a telegraph pole and had to retire. His mechanic was sent flying out when he struck the pole, but Jagersberger stayed in his seat until the car was stopped. Then he jumped out and, after frantically "winding her up," scrambled in alongside of his mechanic, who was unhurt and who hopped aboard and started off again down the course, leaving a trail of smoke that would have done credit to an ocean liner. But he only got as far as the repair pits, when he discovered that the car was too badly wrenched to be driven with safety, and it was withdrawn.

Charles Basle, who made his debut at the wheel of a Cole "30-40," was unlucky at the start. He got away well and ran consistently until the sixth lap, when his carburettor went back on him and he had to quit. It had been giving trouble for some time and in consequence he was unable to make the showing that was expected of him.

From the trade point of view the race was largely a Bosch-Michelin triumph. Of the 16 cars that started, just half of them were sparked by Bosch magnetos, while 93 per cent. of them were equipped with Bosch plugs. Of the various class winners 75 per cent. were equipped with Bosch magnetos and every one of them used Bosch plugs. Disbrow's National was equipped with a Splitdorf magneto. All of the winners were shod with Michelin tires, as were the winners of second and third places in the 451-600 inch class.

When the Fairmount Park race first was run in 1908, "Smiling" George Robertson led the field home at the wheel of a Locomobile, and his time, which was 4:02:30, was considered pretty fast driving. But the following year he came right back and with a Simplex he won again and lowered his time to 3:38:48½.

The way that Len Zengle drove his Chadwick around the course 25 times in 3:29:07 in winning the contest of last year, also is history, and this year for the fourth time the record for the race has been lowered. Bergdoll's average time per mile throughout the whole of the long grind was 58.8 seconds and his fastest average mile, made in 55.3 seconds, was negotiated in the second lap, when he established the new record of 7 minutes 28 seconds for one lap. Bergdoll started in last year's race and when three minutes in the lead was forced to quit by the breakage of the oil pipe of his Benz. Three other Benzes also started, but all suffered mishaps and none finished. This year there was a different story.

RAIN RUINS OMAHA'S RACE PLANS

Continued Downpour Completely Upsets the Program and Greatly Shortens It—Pearce Wins Twice.

When promoting automobile races in the future the Omaha Motor Club, of Omaha, Neb., first will have to get into the good graces of J. Pluvius, the fellow who controls the heavenly sprinkling can. After postponing the four-day races announced for the 30th ult. to 3d inst. until the 4th to 8th inst. because the speedway was deemed unsafe after three days of continuous rain, they were only able to use the course one day. During the other days J. Pluvius either tilted his can or his work of the preceding day had left the course in such dangerous condition that the officials would not permit it to be used. Three races only were run and these were close contests, which in a manner repaid some of the disappointment. William Pearce, driving a Colby in the 25-mile, free-for-all, captured the Speedway Cup and at the same time made the course in 24 minutes and 52¾ seconds. He also won the 10 miles for cars under 301 inches displacement, and the 10 miles for cars under 231 inches displacement went to Ed Rickenbacher, Firestone-Columbus.

The summary:

Ten miles, class C, under 301 inches displacement—Won by William Pearce (Colby); second, Ed Rickenbacher (Firestone-Columbus); third, William Bruner (Chalmers). Time, 10:09.

Ten miles, class C, under 231 inches displacement—Won by Ed Rickenbacher (Firestone-Columbus); second, Walter Smith (Abbott-Detroit); third, William Bruner (Chalmers). Time, 11:47½.

Twenty-five miles, free-for-all—Won by William Pearce (Colby); second, Ed Rickenbacher (Firestone-Columbus). Time, 24:52¾.

Reckless Driver to Jail for Life.

Alexander Tracey, of Port Huron, Mich., has the unenviable distinction of being the first chauffeur to feel the full severity of the Canadian law in regard to criminal negligence in operating a motor car. He was found guilty and sentenced to life imprisonment. Tracey, on September 4, was driving an automobile through Toronto streets at such a furious rate that he ran into a crowd of people, injuring several, who had to be taken to hospitals. When placed on the stand in his own behalf he claimed that his brake did not work, but witnesses testified that he was intoxicated, or at least that he acted like a drunken man. The Government argued that although no person had actually been killed, this was due solely to Divine Providence, and that insofar as the chauffeur's actions were concerned he

had wantonly menaced human life and deserved the severest punishment. It is expected, however, that he will be pardoned after having served a reasonable term of imprisonment.

Organize New Clubs in Three States.

The Taunton (Mass.) Automobile Association has been organized with these officers: President, Dr. Arthur R. Crandall; vice-president, Frederick Ludlam; secretary-treasurer, Richard Westcoat; directors, the officers, Arthur C. Staples, Frank O. Dean, Dr. Ralph D. Dean, Pardon B. Sanford; representative to the American Automobile Association, Dr. Arthur R. Crandall; representative to the Massachusetts State Automobile Association, William R. Reed. The club will affiliate with the A. A. A.

Twenty motorists of Houghton county, Mich., have formed the Copper Country Automobile Club, with headquarters at Houghton, Mich. The officers are: President, R. Skiff Shelden, Houghton; vice-president, Fred S. Eaton, Calumet; secretary-treasurer, W. D. Calverly, Houghton; directors, the officers, Johnson Vivian, Calumet; John L. Harris, Hancock; H. S. Goodnell, Painesdale; A. F. Heidekamp, Lake Linden.

At its annual meeting last week, the Automobile Club of St. Louis, Mo., elected the following officers to direct its affairs for the ensuing year: President, Roy F. Britton; secretary, James Hagerman, Jr.; treasurer, Edward M. Flesh; directors, Roy F. Britton, Edward M. Flesh, J. Howard Holmes, Alden H. Little, Sam D. Capen, James Hagerman, Jr.; Joseph R. Barroll, Samuel Plant, George J. Tansey.

Motorists of Yazoo county, Miss., have organized the Yazoo County Automobile Association. The officers are: President, R. H. Douthat, Yazoo City; vice-presidents, Dr. S. D. Luce, Benton; Dr. E. G. Parke, Benton; A. S. Gardiner, Yazoo City; Dr. Boyle Seward, Eden; Dr. C. B. Holmes, Silver City; secretary-treasurer, John S. Hord, Yazoo City.

Sportsmanship Gives Prize to Gardham.

In the Buffalo reliability run, September 7-10 last, the prize in the class for touring cars \$1,200-\$1,600 has been awarded to J. W. Gardham, who drove an Everitt. When the technical examinations took place a dispute arose between examiners concerning the three cars finishing in the class and the award was withheld for several days. It was then announced that the prize went to E. G. Gager, who drove a Maxwell, who had the lowest road penalties charged. Gager, however, in a sportsmanlike manner declined the prize, stating that unintentionally he had violated one of the A. A. A. rules and would not take advantage of it. After consideration the Contest Board then awarded the prize to Gardham.

Impediments to General Use of Power Wagons

"It seems to be a habit of the practical mind to try to stretch its own specialty to the solution of every problem it encounters, whether obviously fitted for it or not," declared Hayden Eames, one of the pioneers in electrical vehicle construction and operation, in discussing "Impediments to the General Introduction of Power Wagons" before the Electrical Vehicle Association of America at its second annual convention in New York City, on Tuesday, October 10. "For many years this tendency, directly or indirectly, delayed the work of introduction of power wagons more perhaps than any other. Those most interested in the introduction of the power wagon during those years were engineers," he went on to say in the course of his address.

The "peculiar mental bias" cited in the opening phrase served to focus attention on a search for "engineering solutions" of whatever problems it was possible to define. Attention was correspondingly diverted from any attempt to remove the "true impediments" to power wagon introduction which, during that period were "almost exclusively administrative, and 'psychological' and to a less degree financial."

"While the introduction of the power wagon has made some progress during the period named," Col. Eames continued, "it is still conservative to say that 'the surface has not been scratched.' Power wagon failures are still being reported by people who are trying to use the new machine in the old way; who unconsciously are limiting the capacity of the power wagon by the practices of draught-animal days. . . .

A recent alleged failure of power wagons reported to me was almost as hopeless of cure as though the owner had insisted on putting oat-bins into his machine shop; in fact, the cause of failure was somewhat analagous. It is this that we have to contend with. . . . Unfortunately, it is not only going to be necessary to directly educate owners and prospective users of power wagons, but their employees, even to the drivers, who have in most cases got to modify their points of view and methods before the introduction of power wagons can be expected to be general.

"Like much other labor-saving machinery, especially in the transportation field, the power wagon speeds the men up all along the line. The operators, although much fewer for a given product, have to work harder and faster, but almost invariably obtain their compensation from shorter hours, perhaps not in proportion,

but still to an agreeable extent. The increased speed is the first thing the driver feels. It takes him some little time to find his own advantage.

"A good illustration lies in a story which was told me by an Adams Express agent in Buffalo some eight or nine years ago. At that point and at that time the Adams Express Company had the first really successful installation of electric vehicles. Owing to a poor selection of the size of the vehicles in relation to the routes covered and the service to be done, the station was not as economical as it could have been made, but it was at that time an exceedingly well operated station, and in all probability was at that time, in spite of the above mentioned handicap, delivering express packages more cheaply than it was being done anywhere else in the United States by any means whatever. When the wagons were first introduced, the drivers immediately felt the exactions of the greater speed; they felt themselves 'speeded up,' and they were loud in their denunciations of the whole scheme. They rejoiced in every accident that occurred and took delight in the misfit electrical conditions under which, at first, the vehicles were charged. At the time I speak of, the whole station had changed. The drivers had discovered that instead of being dragged back from the last package on distant routes at a very slow rate by a tired horse, the electric express wagon now 'running light' brought them back at even a faster rate than that at which it had been running during the day. As one of them said to me: 'I can deliver all my packages now, and get home a half hour sooner than I used to.' At that time the express agent offered to buy a new team with brass trimmed harness for any one of the electric wagon operators that would drive it, but it was rejected with scorn.

"All this education takes time, and hardly anybody is addressing himself to try to bring it about.

"Perhaps the commonest of all bad practices is that of applying the power wagon to a delivery route previously operated by a horse wagon of the same size, and limiting it thereto. The difference in the actual cost of operation between a given size of horse wagon and a given size of power wagon is seldom in favor of the latter, and this is true, also, of the first cost of the complete unit. The principal economical virtue of the power wagon lies in its character of labor-saving machine. Under almost all conditions the price of drivers is the largest single item of expense. Taking the station hands into consideration, the

payroll is always the largest single item of expense.

"The problem of the successful user of the power wagon then lies in the question of 'How much goods can I deliver per man per day?' or, 'How much work can I do with a man per day?'

"It does not seem to take an Isaac Newton to realize that if the work of a man operating the new machine is arbitrarily limited to only what he can do with the old, nothing is gained. In all regular delivery systems the problem is not only to lay out the routes to fit the new machines, but to select the machine sizes so that the largest possible machine that can be fully loaded will completely empty itself over a selected route in a man's day's work. This extremely simple mathematical thought seems to be almost incomprehensible to the majority of power wagon users. In some express companies, and others, whose principal business is city transportation, certain routes have become a positive institution, and, although usually originally of an entirely arbitrary selection, are assumed to be as immutable as the value of Pi. . . .

"We are, however, occasionally treated to a refreshing case of independence and directness in the substitution of power wagons for horse service.

"In the fall of 1901, the Adams Express agent in Pittsburg put in service at East Liberty a light electric express wagon, and in doing so gave instructions to the agent at that point, against the latter's protest, that he should 'lay off all four of his horse wagons, and do his work with the electric,' that he (the Pittsburg agent) would decide later whether he would allow him any of the horse wagons back or not.

"This was certainly 'taking the bull by the horns'; but, as the East Liberty agent's 'job' was at stake, the result justified the risk, and only one wagon of the four was put back into service, and that only as an 'extra.' Of course, the intention of this 'barn-yard' approach could easily have been defeated had the size and speed of the wagon been unsuitable to the particular service to be performed.

"A good example of what it means to 'speed up,' not only the operators, but the daily routine and methods, is afforded by the ordinary practices of our great express companies when horses were a rule with them.

"I have before me a careful plotting of ten established routes of different express companies in New York City made in the spring of 1902. You will probably be surprised to discover that from the time the

horses left the barn in the morning until they got back at night, the teams were standing still 40.4 per cent. of the time, the maximum idleness on any one route being 64.25 per cent., the minimum 27.25 per cent. At least 50 per cent. of this is due to the fact that the gait of the man matched the gait of the horse. The draft animal belongs to a slow age, and the man who drove him as a rule adapted himself to it.

"If any one is in doubt as to the reality of this effect, let him observe the Egyptian plowman with his water buffalo. The ordinary plowman is slow enough, but the Egyptian's movements suggest the chameleon. The ordinary draft animal operator grades up from this on the way to the operators of machines. But the accessory facilities have also been accommodated to the draft animal, and are, correspondingly, impeding its successor. The methods of loading and unloading and of handling packages, the shipping room arrangements and routine, and even the unnecessary time (assumed to be necessary), even with the existing facilities, are all adapted to the gait set by the horse, and all tend to deprive the machine owner of his advantage; and, remember, these speeds are not set to what the horse can do or necessarily actually does, but what he may do. Long practice has sub-consciously led to their adjustment to the uncertainties of the horse in spite of the goad of competition. . . . Those who have been through the experience cannot fail to recall the immediate effect of the use of the power wagon toward remedying this condition. The difficulty is to get the first one purchased and properly used. . . .

"The reality of the impediment which present handling facilities interposes to the introduction of power wagons can be illustrated by a case I once came across of a high grade dry goods company in one of our largest cities, whose installation of electric vehicles could not be made to pay. Examination developed the fact that no effort was made to crate or handle the packages in the waiting room with any reference whatever to the respective routes upon which they were to be delivered, and that the routes were laid out with equal disregard to the shortest possibly empty haul; following their practice with draft animals, the wagons were driven to the opening points of the routes, and, extraordinary as it may seem, the packages were all taken out of the wagons and spread along the beds of grass between the curb and sidewalk. Some of the wagons carried one boy, and some two boys—each with a large canvas bag. Each boy pawed over the pile of packages and selected and put in his bag the packages belonging to the block that he was to cover, and those that were left the driver took back into the wagon and drove to the point at which the boys were respectively expected to 'finish their bags.' Rather than this, the firm

should have abolished its entire wagon system and employed boys with bags to carry the packages to the destinations on public trolley cars. . . .

"Many of these requirements could be made to improve the horse service if the horse himself had the endurance to stand it—a point that is frequently overlooked. As has often been said, there is no wattmeter on the horse, and, in consequence, he is generally worked more or less beyond his normal capacity, the loads and routes being more or less subconsciously selected to that end. To save this loading time, therefore, means to cut down the horse's rest, without which he cannot do the work assigned him, but the power wagon needs no rest in the same sense, and it is a large enough investment to make it desirable to conserve this time.

"In considering this general question of reducing delays and loading times, it is often overlooked that the day's mileage is a rough measure of the work performed by a unit in a given service. An hour's delay on a five-ton truck, averaging say two and a half miles an hour, may be a large percentage of a day's work in that unit, but measured in dollars it represents only a third of the loss represented by a similar period of idleness in a five-ton power wagon whose average running speed is seven and a half miles per hour.

"It is very hard to persuade the average user that the idle periods in the day's work in any way affect a comparison of the draft animal and power wagon. The reactionary effect of external conditions goes deeper, and is far more nearly universal than the mere lack of facilities in individual establishments. For example:

"The dimensions of many of the downtown alleys in Chicago put a definite limit on the truck dimensions that can be used therein, and nearly all trucks working in that part of the city load or unload in the alleys. The peculiar arrangement of the railroad freight yards in Chicago curtails the efficiency of all methods of highway transportation to such a degree as to greatly dwarf the question of their relative advantages. Those who have investigated this particular case closely state that it is no exception to the rules, that the conditions can be perfectly well met by a rearrangement of these yards with direct reference to the use of automobiles with a probable improvement of 150 or 200 per cent. in their loading and unloading capacity. It is reported that the railroads themselves are alive to the situation, and are approaching the solution in a more or less dilatory manner with an entire ignorance of the expert knowledge that is available on this subject in the automobile field.

"There are many analogous cases throughout the country; many of them can probably be partially met by special portable loading apparatus of one kind or another applied to the trucks themselves. Next to the increase of factor of safety

in operating cost to be obtained by improvement in tire maintenance on the heavier trucks, there is perhaps no single field in which the designing engineer, strictly so-called, could play as large a part in developing this business as right in this field of portable loading apparatus and the design of trucks with reference to special service. This is one of the few departments of automobile knowledge in which there is anything yet to be learned from draft animal practice, or, rather from the practices that existed during the draft animal period. . . .

"There are, of course, many minor considerations which tend to retard power wagon introduction, and some of them are of a very isolated character. For example: One user of electric livery wagons in New York still uses many horses, and he probably will as long as there is a sale for high grade coach horses, because he raises them and uses his wagons to break them in. This particular firm needs no instructions from anybody. They are as well informed on the economy of delivery, and as well organized, and as unprejudiced, as any wagon user we have come in contact with.

"Then there is always the reactionary or interested delivery manager. I have in mind a case where electric trucks came to grief very largely, but not entirely, because the man in charge of them received a personal compensation for every horse wagon he was obliged to employ in excess of the electric installation. As a result of this situation an electric truck averaging about seven and a half miles an hour round trip by cyclometer, found itself unable to deliver any more goods per day than a horse vehicle of the same capacity averaging two and a half miles per hour round trip by cyclometer. Whenever, as in this case, it looks as though the laws of nature were suspended to the detriment of the power wagon, it is a pretty certain indication that something of this kind is to be looked for. But apart from these minor, but almost universal, considerations, which occur in endless variety, the principal obstacles will be found to be practically limited to those discussed more at length in the above paper."

When Connecting Brake to a Pedal.

The practice of connecting the brakes to a pedal or to the emergency brake lever by means of wire cables is by no means uncommon, but while it is claimed that the system permits positive equalization of the brakes, this is so only when both cables run over equally easy working pulleys. If one pulley sticks, or if one end of the rod to which the cables are attached does not work freely in its slot, a greater strain will be imparted to one brake shoe than to the other. Care should be taken to see that all parts of the brake mechanism work freely and do not lack lubrication, especially in those cases where the cables are placed in tubes.

OVERLAND'S VARIED OFFERINGS

Wide Latitude Afforded Purchasers by New Line—New Bodies and Many Notable Refinements of Details.

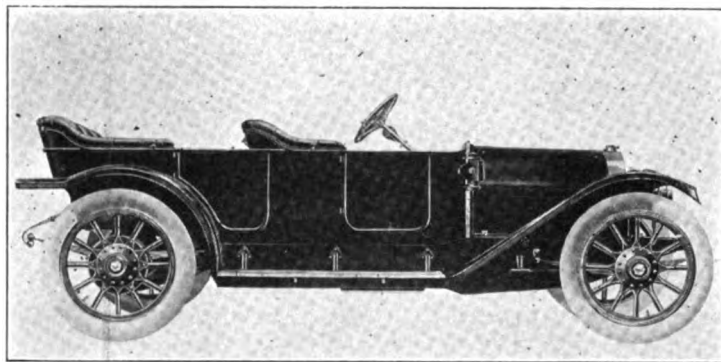
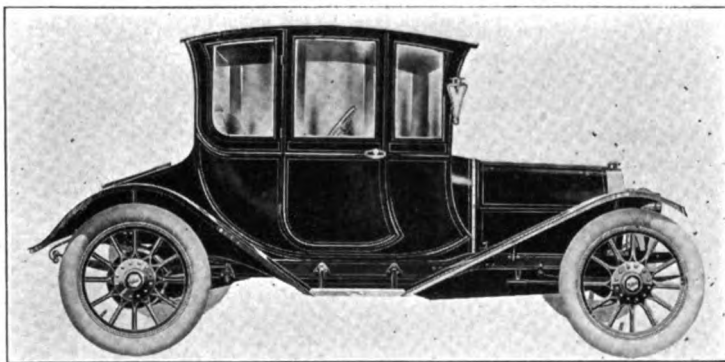
Motorists and those coveting the distinction which membership in that class entails who contemplate making selection from the new Overland line are likely at first to encounter no small bewilderment. The advantages of buying that particular make of automobile may not be difficult to understand, but the actual choice of one of nearly a dozen models, all of which look as like as so many peas and are as nearly

the maximum of \$2,000 down to \$850, and in powers of 25 to 45 horse, according to the purpose of the machine. Furthermore, the new line is even more nearly uniform in general design than the present one, such differences as heretofore have existed having been eliminated in one way or another.

Four chassis models are now produced, which are distinguished by the numerals 61, 60, 59 and 58. Three of them correspond to former models, though modified in numerous details, while the fourth, model 59, has the cylinder bore of the old models 50 and 51, but otherwise is new. With one exception all models now are equipped with three-speed selective change gear mechanisms, but in deference to its

comb radiator, which is of more efficient construction, an improved clutch brake, in which the clutch cone on its withdrawal comes in contact with a revolving disk instead of a fixed one, as formerly, and which therefore wears uniformly, a bar connecting and stiffening the lamp brackets, such as was used on the old models 52, 53 and 54, are features common to the three larger chassis of the new line. The clutch brake particularly is a noteworthy improvement, inasmuch as the former device tended to wear a groove in the face of the disk through continual rubbing during the gear-changing operation.

The engine of the new large car has been increased in power from 40 to 45 horse, through the increase of the cylinder bore



OVERLAND INSIDE DRIVEN COUPE AT \$2,000 AND THE \$1,500 45 HORSEPOWER TOURING CAR

SUMMARY OF THE OVERLAND NEW MODELS, SHOWING THEIR ESSENTIAL DIFFERENCES

Model No.	Type.	Pas. Cap.	H. P.	Cylinder Dim's'n's.	Oiling System.	Magneto.	Clutch.	Change Gear.	Brake Sizes.	Rear Springs.	Wheel Base.	Tire Sizes.	Price.
61-T	Tour.	5	45	4 $\frac{3}{8}$ x4 $\frac{1}{2}$	Pump	Bosch	Cone	3-Sel.	14 x3 $\frac{1}{2}$	$\frac{3}{4}$ ellip.	118	34x4	\$1,500
61-F	Torp.	4	45	4 $\frac{3}{8}$ x4 $\frac{1}{2}$	Pump	Bosch	Cone	3-Sel.	14 x3 $\frac{1}{2}$	$\frac{3}{4}$ ellip.	118	34x4	\$1,500
61-R	Road.	2	45	4 $\frac{3}{8}$ x4 $\frac{1}{2}$	Pump	Bosch	Cone	3-Sel.	14 x3 $\frac{1}{2}$	$\frac{3}{4}$ ellip.	118	34x4	\$1,500
61-C	Coupe	4	45	4 $\frac{3}{8}$ x4 $\frac{1}{2}$	Pump	Bosch	Cone	3-Sel.	14 x3 $\frac{1}{2}$	$\frac{3}{4}$ ellip.	118	35x4 $\frac{1}{2}$	\$2,000
61-T	Tour.	5	35	4 $\frac{1}{8}$ x4 $\frac{1}{2}$	Pump	Remy	Cone	3-Sel.	12 $\frac{3}{8}$ x2 $\frac{3}{8}$	$\frac{3}{4}$ ellip.	114	34x4	\$1,200
60-F	Torp.	4	35	4 $\frac{1}{8}$ x4 $\frac{1}{2}$	Pump	Remy	Cone	3-Sel.	12 $\frac{3}{8}$ x2 $\frac{3}{8}$	$\frac{3}{4}$ ellip.	114	34x4	\$1,200
59-R	Road.	2	30	4 x4 $\frac{1}{2}$	Force	Splitd'f	Cone	3-Sel.	10 x29/16	$\frac{3}{4}$ ellip.	106	32x3 $\frac{1}{2}$	\$900
59-T	Tour.	5	30	4 x4 $\frac{1}{2}$	Force	Splitd'f	Cone	3-Sel.	10 x29/16	$\frac{3}{4}$ ellip.	106	32x3 $\frac{1}{2}$	\$900
59-C	Coupe	3	30	4 x4 $\frac{1}{2}$	Force	Splitd'f	Cone	3-Sel.	10 x29/16	$\frac{3}{4}$ ellip.	106	33x4	\$1,250
58-R	Road.	2	25	3 $\frac{3}{4}$ x4 $\frac{1}{2}$	Force	Splitd'f	Plate	Plan.	10 x29/16	elliptic	96	32x3 $\frac{1}{2}$	\$850

alike—saving only in size and power—as skilled industry can make them, seems difficult at the outset. Closer investigation, however, reveals the fact that the development of the Willys-Overland Co., of Toledo, O., builder of the Overland line, has reached a point where that great and growing concern is able to offer practically equivalent products graded through easy steps to fit the requirement of the individual just to a Tee.

Through a careful process of refinement and selection it has been found possible to improve the new line and also to reduce it to its lowest terms, so to speak, by eliminating needless multiplications. Thus the product which will seek the market in 1912 will number but ten distinct models, as against 13 in the line immediately preceding it. At the same time the same general variety is preserved, including cars of two, three, four and five passenger capacity, in roadster, torpedo, standard touring and coupe forms, at prices which range from

recognized advantages the pedal-operated planetary system which has been an Overland characteristic in former years is retained on the smallest model, which is a two-passenger roadster.

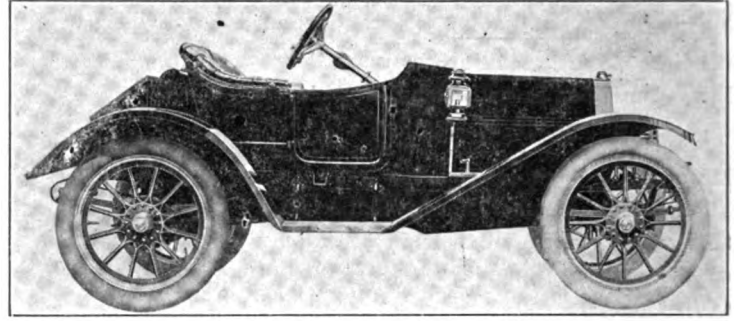
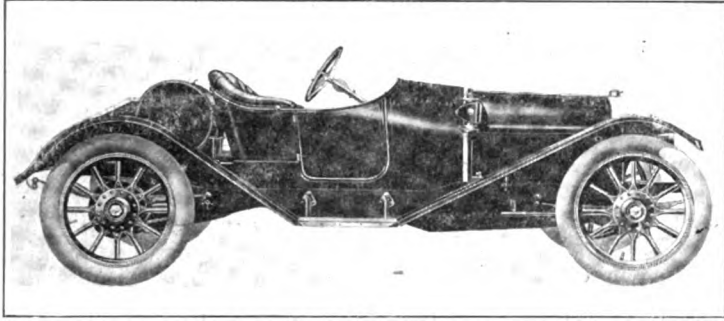
The large chassis, which is of 45 horsepower and equipped with a 4 $\frac{3}{8}$ x4 $\frac{1}{2}$ -inch four-cylinder motor, is developed as a five-passenger touring, four-passenger torpedo, two-passenger torpedo roadster and four-passenger, inside-driven coupe. In the open patterns it sells for \$1,500, which is \$100 less than was asked for the previous corresponding models 52, 53 and 54. The coupe, which is an entirely new creation and fashioned after the popular design of the Sedan body, lists at \$2,000.

As compared with the previous corresponding models the new features which are embodied in the 61 chassis may be summarized briefly as follows:

Stronger wheels, having very wide hub flanges, with 12 bolts in front and 18 bolts in the rear members, a new-style honey-

comb radiator, which is of more efficient construction, an improved clutch brake, in which the clutch cone on its withdrawal comes in contact with a revolving disk instead of a fixed one, as formerly, and which therefore wears uniformly, a bar connecting and stiffening the lamp brackets, such as was used on the old models 52, 53 and 54, are features common to the three larger chassis of the new line. The clutch brake particularly is a noteworthy improvement, inasmuch as the former device tended to wear a groove in the face of the disk through continual rubbing during the gear-changing operation.

In connection with the new rear axle equipment, which is of the full-floating pattern and, like the front axle, Timken roller bearing mounted, though still embodying the change gear mechanism in a single unit, larger brakes have been adopted. The drums now are 14 inches in diameter, instead of 12 inches, and the brakes have 2 $\frac{1}{2}$ -inch faces, instead of only 1 $\frac{1}{4}$ inches, as before. The brakes are of the external-

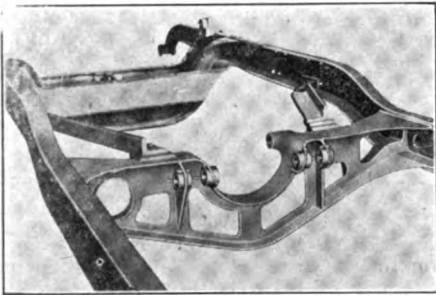


THE TWO NEW OVERLAND TORPEDO ROADSTER MODELS—45 HORSEPOWER AND 25 HORSEPOWER

internal patterns and applied in the usual manner, namely by foot pedal for the service set and lever for emergency control.

which are tool storage compartments and a cradle for mounting the gas tank, which is a regular equipment. These two models

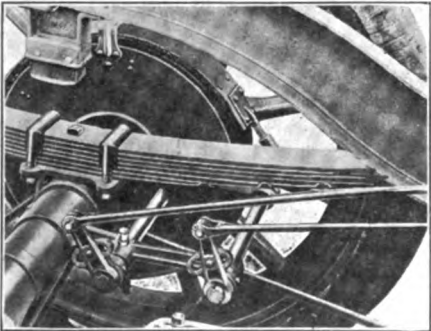
Increased horsepower in the case of the 60 chassis has been obtained by enlarging the cylinder bore from 4 inches to $4\frac{1}{2}$



COMBINATION CROSS FRAME MEMBER

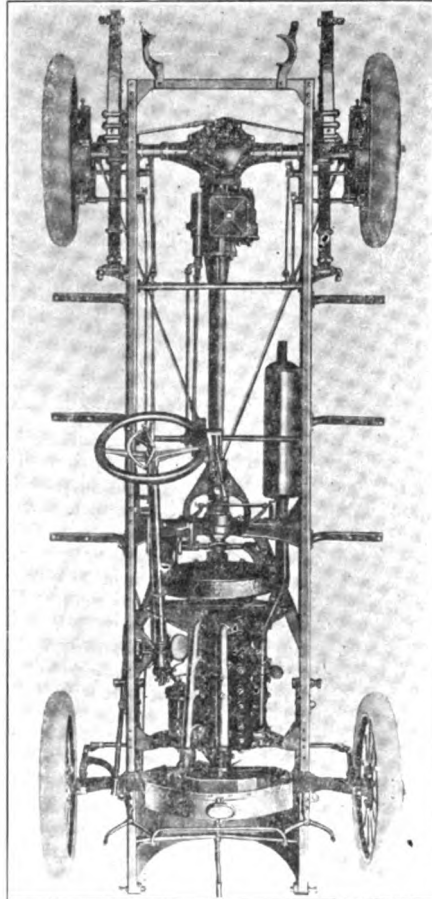
They are equalized by a new system and have a simple form of local adjustment.

An improved muffler cut-out, grease cups on the spring shackles, instead of oilers; front and rear aprons and nickel plated trimmings are other improvements that apply to all four of the 45-horsepower



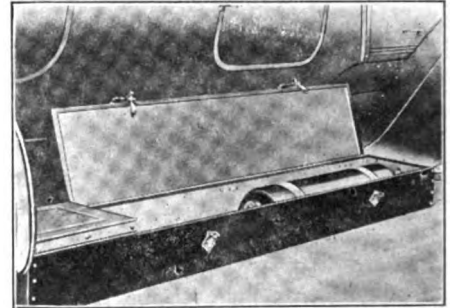
BRAKE ADJUSTMENTS ON MODEL 61

models, while in addition the touring and torpedo types have steel running boards with boxes below the tread surface, in



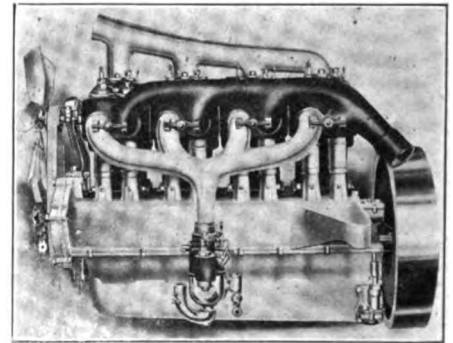
45 HORSEPOWER OVERLAND CHASSIS

also have rear fender irons that are integral with the body and tire irons attached to the rear seat and rear frame.



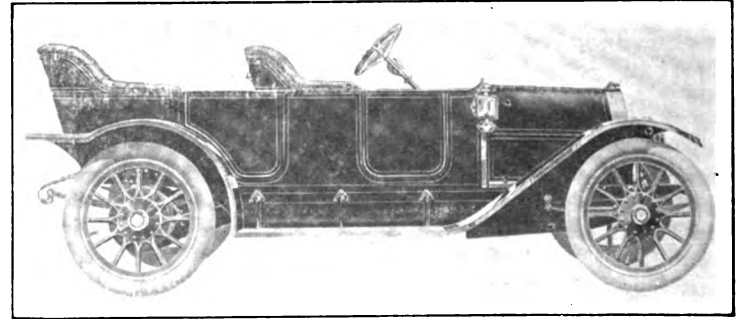
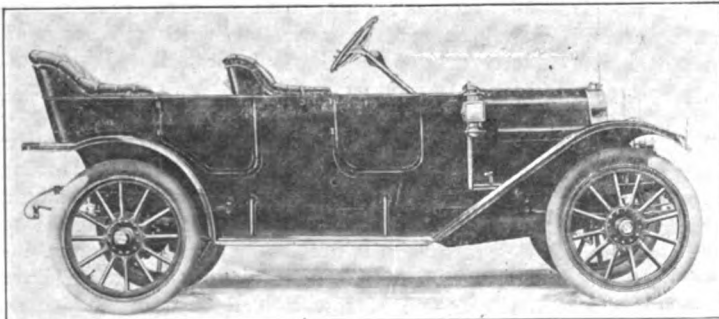
COMBINED TOOL AND GAS TANK BOX

inches, the stroke remaining $4\frac{1}{2}$ inches. Enclosed valve stems are an innovation, while another innovation is an oil pump mounted in the engine base and serving the constant-level splash system in the crank case, which replaces the former external



VALVE SIDE OF "61" MOTOR

force-feed lubricator in the T and F models. Center mounting of the control set is another innovation, common also to models



THE \$900 30 HORSEPOWER OVERLAND TOURING CAR AND THE 35 HORSEPOWER CAR AT \$1,200

59-T, R and C, while the change gear mechanism has been improved in certain details. Timken front axle bearings, grease cups on the spring shackles, rear fenders fastened to irons integral with the body, are other improvements. This chassis model is produced in five-passenger touring and four-passenger torpedo forms only and sells for \$1,200.

Model 59, which sells for \$900 whether equipped as a five-passenger touring car or a two-passenger torpedo roadster, has a 4x4½-inch motor, which in general is of the same design as the two larger engines, the improved clutch brake, center gear control and several other of the refinements which have been introduced in the larger models. It is rated at 30 horsepower, has 32x3½-inch tires, front and rear, and the same style of equipment as the other models. To meet the special requirement of motorists who require an enclosed car of smaller proportions and lower cost than the 61-C coupe, it also is produced in the form of a three-passenger inside-driven car built along lines closely similar to those of the more powerful machine and remarkably complete for the price asked, which is \$1,250.

The smallest member of the line, the 25 horsepower model 58-R torpedo roadster, which sells for \$850, is much the same as the corresponding offering of last year, though improved in such minor details as the addition of a tool box on the rear deck and removable running boards. In respect to body design, it has the new standard lines and by no means "looks" the part of the little car, which its price would seem to imply. In fact it is in many respects the most striking member of the line, price and power considered.

In the matter of equipment the same sort of standards obtain that prevail in the general construction of the entire line. Tops, windshields and other fittings are listed as extras, but the regular equipment of each member of the line is ample for all ordinary running conditions. It includes three oil and two gas lamps, together with the generator—or, in the case of the 61 models already mentioned, gas tanks, as well as the horn and full set of tools. Magnetos are standard equipment for the entire line, the installation being supplemented by batteries to form a dual system in each case. On models 61 Bosch equipment is employed, Remy magnetos being applied to the two models 60 and Splittorf to the 59 and 58 models, respectively.

Tapping That Loosens Carbon Deposit.

It is well occasionally to tap the exhaust pipe lightly while the engine is running in order to loosen incrustations of carbon deposit which form and partially obstruct the pipe. For this purpose a very light hammer should be used as there is grave danger of cracking the pipe unless great care is taken.

MAKERS WHO SECURED SPACE

(Continued from page 172)

Knox Automobile Co., Olds Motor Works, The Elmore Mfg. Co., The Locomobile Co. of America, Packard Motor Car Co., Winton Motor Car Co., The Peerless Motor Car Co., Woods Motor Vehicle Co., National Motor Vehicle Co., The Haynes Automobile Co., The Thomas B. Jeffery Co., The F. B. Stearns Co., The Pope Mfg. Co., E. R. Thomas Motor Car Co., Mitchell-Lewis Motor Co., The Bartholomew Co., Stevens-Duryea Co., The White Co., Cadillac Motor Car Co., The Columbia Motor Car Co.

The Pierce-Arrow Motor Car Co., Premier Motor Mfg. Co., Dayton Motor Car Co., H. H. Franklin Mfg. Co., Jackson Automobile Co., The Baker Motor Vehicle Co., Austin Auto Co., Maxwell-Briscoe Motor Co., Moline Automobile Co., Buick Motor Co., Lozier Motor Co., Reo Motor Car Co., Corbin Motor Vehicle Corp., Metzger Motor Car Co., Nordyke & Marmion Co., American Locomotive Co., Babcock Electric Carriage Co., Pierce Motor Co., The Willys-Overland Co., Marquette Motor Co., The Rauch & Lang Carriage Co., Matheson Automobile Co., The Kissel Motor Car Co., The Columbus Buggy Co., American Motors Co., Cartercar Co., Brush Runabout Co.

Oakland Motor Car Co., Simplex Motor Car Co., The Garford Co., Pullman Motor Car Co., Studebaker Corporation, Interstate Automobile Co., Chalmers Motor Co., Anderson Electric Car Co., Hupp Motor Car Co., Hudson Motor Car Co., Selden Motor Vehicle Co., The Waverley Co., Cole Motor Car Co., The Ohio Electric Car Co., Hupp Corporation, Regal Motor Car Co., Clarke-Carter Automobile Co., Imperial Automobile Co., The De Tamble Motors Co., Abbott Motor Co., Krit Motor Car Co., Auburn Automobile Co., Moon Motor Car Co., The Buckeye Mfg. Co., Staver Carriage Co., Dorris Motor Car Co., The Schacht Motor Car Co., Crow Motor Car Co., Streater Motor Car Co.

W. H. McIntyre Co., F. I. A. T. Cars, Zimmerman Mfg. Co., Speedwell Motor Car Co., Colby Motor Co., The Ohio Motor Car Co., Great Western Automobile Co., The Broc Electric Vehicle Co., Middleby Auto Co., The Class Journal Co., Kline Motor Car Corporation, The Republic Motor Car Co., Haberer & Co., Lion Motor Car Co., McFarlan Motor Car Co., James Cunningham Son & Co., Michigan Buggy Co., Four Wheel Drive Auto Co., Geo. W. Davis Carriage Co., Ideal Motor Car Co., Warren Motor Car Co., Elkhart Carriage & Harness Mfg. Co., Paige-Detroit Motor Car Co., The Borland-Orannis Co., W. A. Paterson Co., The Willys-Overland Co., Locomobile Co.

The holders of space for the second week, February 5th to 10th, are as follows:

Sternberg Mfg. Co., Knox Automobile Co., The Peerless Motor Car Co., Packard

Motor Car Co., The F. B. Stearns Co., The Thomas B. Jeffery Co., The Pope Mfg. Co., The Pierce-Arrow Motor Car Co., The White Co., Metzger Motor Car Co., The Gramm Motor Truck Co., H. H. Franklin Mfg. Co., The Baker Motor Vehicle Co., Rapid Motor Vehicle Co., Lozier Motor Co., Reo Motor Car Co., Reliance Motor Truck Co., Kelly Motor Truck Co., The Kissel Motor Car Co., American Locomotive Co., Cartercar Co., Brush Runabout Co., Anderson Electric Car Co., Grabowsky Power Wagon Co., The Waverley Co., Mack Bros. Motor Car Co., Staver Carriage Co., Dorris Motor Car Co., The Schacht Motor Car Co.

A. O. Smith Co., W. H. McIntyre Co., Alden-Sampson Mfg. Co., Avery Co., Schmidt Bros. Co., The Federal Motor Truck Co., The United States Motor Truck Co., The Lauth-Juergens Motor Car Co., The Dayton Auto Truck Co., Clark Delivery Car Co., Morgan Motor Truck Co., General Vehicle Co., Mais Motor Truck Co., Walker Vehicle Co., Adams Bros. Co., Stegeman Motor Car Co., Henry Lee Power Co., Universal Motor Truck Co., Four Wheel Drive Auto Co., Coleridge Commercial Car Co., Packers Motor Truck Co., General Motors Co., Russell Motor Car Co., Durant-Dort Carriage Co., National Motor Truck Co., Eclipse Truck Co.

Price Lowered on Hi-Up Dry Cell.

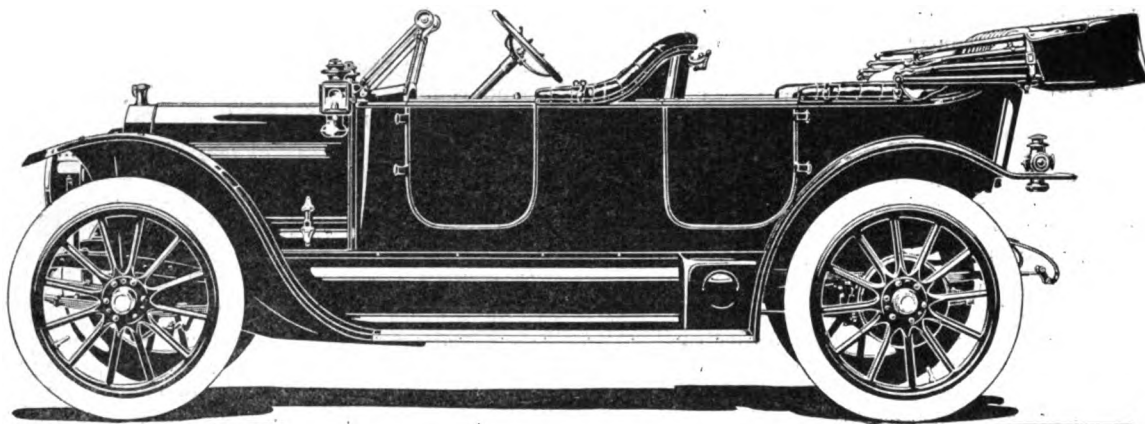
Solely by reason of their price, the Hi-Up dry batteries made by the Manhattan Electrical Supply Co., of New York City, have heretofore not enjoyed as wide a use in motor car service as their unusual amperage and voltage otherwise would warrant, but because of the results they have shown even in a limited application to automobiles, the company has made a modification in the prices that is calculated to popularize their use. Although the Hi-Up name will be continued, the price no longer will accord with the name, and the 2½x6¾ size will sell in quantities less than one dozen at 35 cents each. It is claimed for the battery that it will register from 15 to 20 per cent. higher in amperage than the standard types of dry cells, and that it is superior in endurance work and quick recuperative power. Like the Red Seal batteries, which the company also makes, it is furnished in either round or square cartons, as desired, though the square carton is most used and is the shape which is recommended most strongly.

Paper as Substitute for Lamp Lenses.

In case of either of the lenses of a tail lamp being broken it should be remembered that inasmuch as there is little or no draft on them a temporary repair often may be made with a sheet of fairly tough transparent paper. Incidentally, two thicknesses of waxed paper wired in place in front of a broken headlight lens have been known to hold at speeds up to 20 miles an hour.

Rambler

1912—Cross Country—\$1650



IT'S 38 horse-power, five-passenger, with 120-inch wheel base and 36 x 4-inch wheels and tires. *It's long, it's low, it's roomy.* Low, with drop frame—long, with front axle set forward and straight line torpedo body. Roomy, with 27 inches from front seat to dash and 30 inches from seat to seat in tonneau. No outside door latches. Enclosed ventilated front and hooded dash. A car of exceeding beauty, finished in English Purple Lake—it's a rare shade of deep maroon—trimmed in nickel. Radiator to conform to body lines, high and distinctive in appearance. Fenders with sweeping grace. Powerful brakes. To drive this car is exhilarating. It runs like a spirited horse. You touch the throttle and it's away. It's the Rambler Cross Country and the flag-bearer for 1912.

Equipment, Bosch magneto. Fine, large, black and nickel headlights with Prest-o-lite tank. Black and nickel side and tail oil lamps; large tool box; tool roll with complete tool outfit. Roomy, folding robe rail; foot rest, jack, pump and tire kit. Top, with envelope, \$30—wind shield \$35. Demountable Wheel, less tire, with brackets and tools, \$30. Eveready automatic engine starter \$175.

The Thomas B. Jeffery Company

Main Office and Factory, Kenosha, Wisconsin
Branches: Boston, Chicago, Cleveland, Milwaukee, New York, San Francisco

1912

Thirty-eight H. P. Models

Cross Country, 5 pass.	\$1650
Suburban, 4 pass.	1650
Roadster, 2 pass.	1600
Sedan, 4 pass. enclosed	2500
Gotham, 5 pass. cab side Lim- ousine	2750

1912

Fifty H. P. Models

Country Club, 5 pass.	\$2250
Valkyrie, 4 pass.	2250
Moraine, 7 pass.	2500
Metropolitan, 7 pass. torpedo .	2550
Greyhound, 6 pass. torpedo . .	2550
Knickerbocker, 7 pass. Berline type Limousine	4200

The Dash and the Various "Fixings" Thereon

Perhaps there is no better evidence—visible, at least—of the simplicity which at present is the keynote of automobile design than the dash boards of modern cars. No more are they cluttered with miscellaneous adjuncts, necessary or unnecessary. The driver's attention is required only for driving and he is sure that things are as they should be, for the good and sufficient reason that they are made right and are automatically operated. No longer

estimation of the average owner. Of course, there are those "sporty" individuals who hanker for something that looks hard to manage, whether it is or not, and to them a clean dash is an eyesore; there number is small, however; the great majority desires simplicity.

And now they have Simplicity with a capital S and it is easy to see that only greatly improved designing and manufacturing methods made possible the clearing

tates a stretch to manipulate it, or a kick which endangers the paint work. Several cars, including the Lozier, the S. G. V. and others, have the ignition switch on the steering column and that is its best location. In the Lozier it is just below the wheel on the column, and on the S. G. V., in which fixed ignition without batteries is used, it is a tiny button on the top of the column in the center of the steering wheel; its only function in the latter case is to short circuit the magneto to stop the engine.

Of course, with dual ignition systems in which the battery coil and transformer are enclosed in a casing to which the switch is attached, the logical place for the ensemble is on the dash. In some the cylindrical coil casing is affixed vertically on the dash and carries the switch on its side. On other, the switch is at the end of the casing, in which case the coil and transformer are behind the dash, the switch alone projecting through and being visible. Such an arrangement is shown in Fig. 2, which depicts a Stevens-Duryea dash. The simplicity of the arrangement is at once apparent. The same disposition of coil and switches is illustrated in Fig. 6, in which the Oldsmobile dash is shown. In Fig. 7, which shows a Stoddard-Dayton dash, the arrangement is slightly different, the switch coming not on the dash proper, but on the sloping foot board.

Coils of the box type belong on the dash or off it, according to whether they are vibrating or non-vibrating, respectively. Which is to say that as there are no coils of the vibrating type, which do not require attention and adjustment from time to time, they should be easily accessible. The dash therefore suggests itself as being the most appropriate place for them, because they are then instantly accessible for inspection, and also because of the greater facility with which the wires can be led to the engine. Non-vibrating coils on the other hand never require attention unless they burn out, which does not happen frequently. When they do become deranged it seldom is possible to repair them on the road, and because of this and in view of the fact that they contain no moving parts and therefore cannot get out of adjustment they really do not belong on the dash and might just as well be behind it or in some other place.

In Fig. 1, which is illustrative of Lozier construction, is depicted a clever arrangement of a vibrating coil, which is not on the dash and yet which is adjustable from the driver's seat. The coil is carried behind the dash, the tremblers being ad-

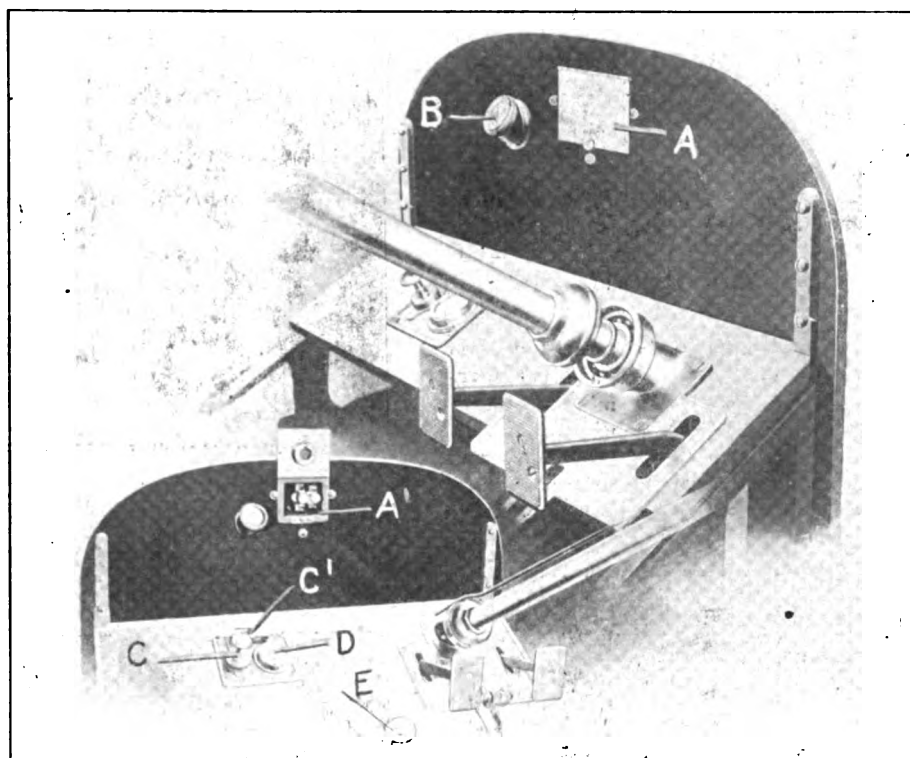


FIG. 1—ENCLOSED SPARK COIL ON LOZIER DASH

must be watch lubricators, drip feed or mechanical; ignition long since has ceased to be a source of extreme vexation, coils, even, being relegated to places of obscurity and need not be touched, let alone watched, which was quite necessary not so very long ago. An ignition switch, a single oil sight feed and possibly a gauge to indicate the amount of gasoline or the air pressure in the tank are all he has to worry about and in not a few cases all other things have been expunged and the ignition switch occupies the dash alone.

All of which proves that automobiles are that much better to-day than they were a year or so ago. And they must be better or people will not buy them. Nowadays no one wants a car with a dash board that resembles the boiler front of a locomotive. The less there is on the dash—in the way of permanent fixtures—the better, in the

away of the multitudinous appliances which once were the bane of the motorist's life. But motorists have not yet got all that is coming to them in the way of simplicity of dash equipment. Some day there will be absolutely nothing on the dash. But what is a great deal more likely is that there will not be even a dash to put things on. Dashes are getting smaller every year and it is perfectly reasonable to expect that in the not far distant future they will disappear entirely.

But dashes remain at present and things are affixed to them. Just what legitimately belongs on them is a matter over which there is a wide diversity of opinion. Almost invariably the ignition switch is placed on the dash, though why it should be there is not quite clear. The dash is not the most convenient place for it, from the driver's point of view, as it necessi-

justed by lifting the door, A. In the lower half of the picture the door is shown opened and the coil tremblers, A', can be seen. In Figs. 3 and 4, in which the Matheson and Rambler dashes are shown, respectively, the orthodox arrangement of a four unit vibrating coil is shown. In both of them the ignition switch is carried on the coil box, the Matheson switch being of the "kick" variety and the Rambler being of the usual hand-operated

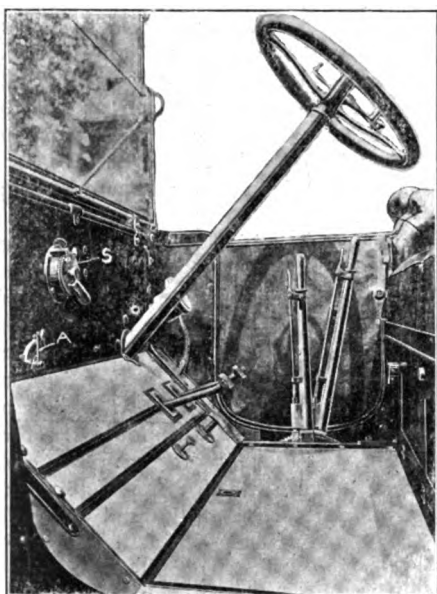


FIG. 2—UNMARRED STEVENS DASH

type. The non-vibrating coil with which Ohio cars are equipped, is shown in Fig 5, and on this also the switch is placed on the coil box.

One of the most noticeable changes which has been made in dash arrangements within the last few years is the removal

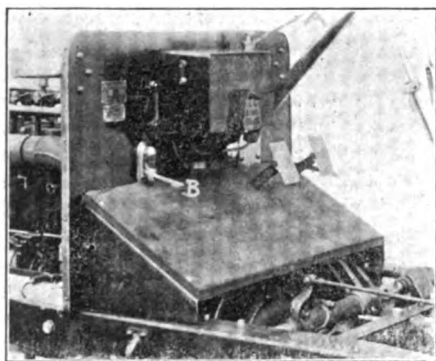


FIG. 3—MATHESON OIL FEED AND PUMP

of cumbersome and unsightly mechanical or drip feed offers, with their multiplicity of oil pipes and adjustments. That the change has been for the better goes without saying. To-day a single sight feed drip, as designated B in Figs. 1 and 3, is all that is seen and lubrication is carried out a great deal better than it ever was when dashes were nearly obscured by oilers and oil tanks with a dozen feed pipes or so. In some makes of cars the

oil is fed under pressure, a gauge serving to indicate to the driver the fact that the system is in operation. The arrangement of a gauge, B, for this purpose, as

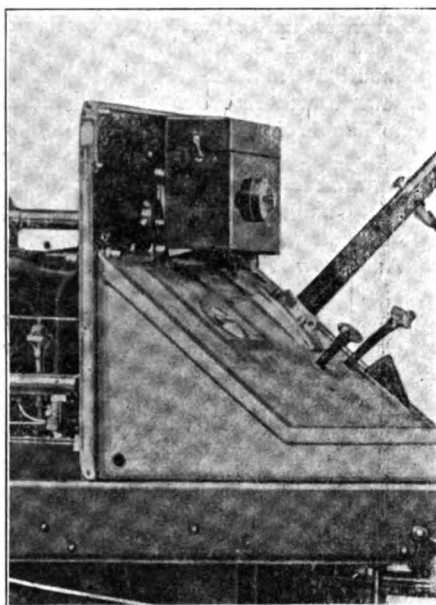


FIG. 4—LOCATION OF COIL ON RAMBLER

used on some models of Oldsmobile and Stoddard-Dayton cars is shown in Figs. 6 and 7, respectively. In a great many cars even the sight feed is missing and yet lubrication is effected continuously, perfectly, without the slightest attention from the driver beyond the occasional refilling of the oil reservoir, generally located in the

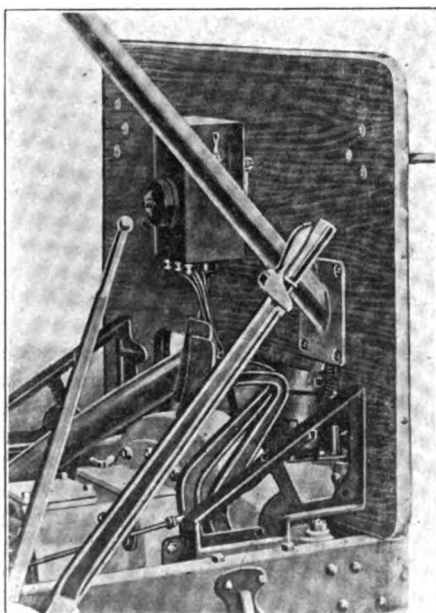


FIG. 5—THE OHIO DASH COIL

engine base, where it is out of sight and thoroughly protected.

When carburettors are so constructed that the air or gasolene may be varied while the car is running and at the option of the driver, it is obvious that the proper place for the lever, by means of which the

adjustment may be made, is on the dash. Carburettors of this type are used by several manufacturers, and though the adjustment lever generally is placed on the dash, somewhat after the manner depicted in Fig. 2, in which the lever A operates an auxiliary air port, on some makes of cars the lever is placed on the steering column.

With the pressure feed fuel supply system it is customary to equip the car with a gauge to indicate the amount of pressure on the gasolene. Such gauges, of

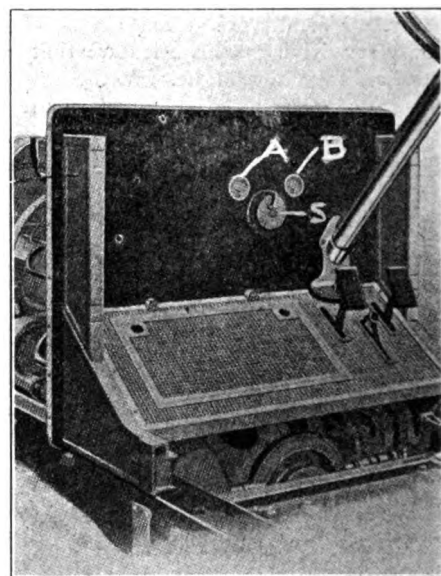


FIG. 6—OLDSMOBILE SWITCH AND GAUGES

course, should be placed on the dash, as in no other place are they directly in sight of the driver. The Stoddard-Dayton gauge

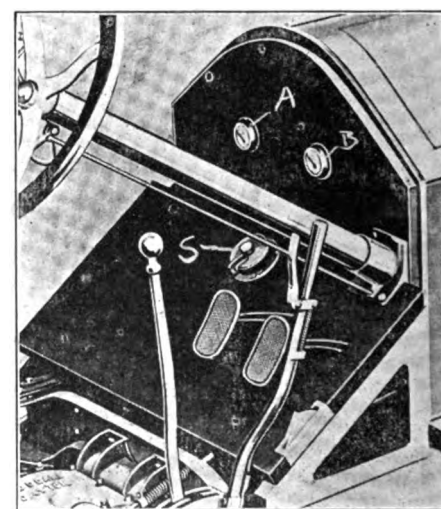


FIG. 7—STODDARD-DAYTON "CLEAN" DASH

A is so placed and conforms to general practice. In the Lozier arrangement, shown in Fig. 1, however, the gauge, D, is located on the sloping foot board beside the hand pump, C, used in obtaining the initial pressure in the tank. The cock, C', is used to release the pressure when the car is left unattended for long periods.

Regarding the disposition of gasolene

ORIGINAL PLANT 1902

RIM AND TIRE PLANT

Non-skid in fact
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LOOK at the tread. The mass of sharp edges, angles, sides and hollows show you why this tire won't let your car skid or slide, no matter how slippery the street.

This thick raised lettering is all extra. After it is all worn down you still have left a regular smooth tread, giving you an extra mileage that no other tire can offer.

The world's record for durability and speed is held by Firestone tires—and the Non-Skid combines this wear-resisting quality of rubber with the only tread construction that is non-skid in fact as well as in name.

Only slightly higher in price than our regular tread—your safety and economy demand the use of Firestone Non-Skid Tires.

The Firestone Tire & Rubber Co.

"America's largest exclusive tire and rim makers"

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NEW PLANT—CONTAINS THE LARGEST TIRE BUILDING IN THE WORLD

gauges, there can be no question as to the right of such fixtures to a place on the dash. Obviously, if a gasoline gauge is to fulfil its mission as a telltale of the amount of fuel available it should always be in plain sight, and the dash is the proper place for it. A few years ago a gasoline gauge on the dash was an almost unheard of luxury. To-day it is a necessity and the number of manufacturers who are supplying one as regular equipment steadily is increasing. Among the first of the cars to be so equipped was the Oldsmobile, and the arrangement of the gauge, A, on the dash is shown in Fig. 6.

While the necessity for a dependable speed indicating instrument generally is conceded and one usually is found on the dash it is an open question whether the dash is the best place for it. In closed front cars the better location is on the top of the door (provided it is supposed to remain closed) far enough forward to be out of the way of the driver, and yet near enough to be visible. The dash of closed front cars is more or less dark, and on some a meter in the orthodox place scarcely can be seen even in broad daylight without a dash lamp. When the meter is placed on the top of the door, or on the skuttle dash it is easily seen, and in the majority of cases, when properly placed, can be read almost without the necessity of the driver removing his eyes from the road. When

the meter must be placed on the dash, there being no other place to locate it conveniently, it should be placed in the left side if the car is driven from the right side, or vice versa if the car is steered from the left side. This will enable the driver to see it easily without the necessity for craning his neck to look under or through the steering wheel, and also leaves it in sight of the occupant of the other seat.

A clock should have a place on the dash, though its exact location is a matter of small moment, provided it can be seen without undue exertion. The exertion in any case will be less than is required to unbutton several coats and after removing heavy gloves fish out a watch. Of course, if the clock is supported on the same bracket with the speedometer a single light will serve to illuminate both dials at night; during the day both can be read at a glance.

Devices for automatically lighting the acetylene headlights are being used now to a considerable extent, and obviously the place for them is on the dash, as convenience of their control is their principal advantage. Electric side and tail lamps also are coming into much more general use, though the switches, by means of which they are controlled, have no place on the dash. They should be, and generally are, placed on the riser board, between the floor board and the seats.

That a perfectly "clean" dash should be the object of every designer is obvious; it would indicate very nearly the acme of simplicity. While cars have been vastly improved in the last few years there still is room for improvement, and it profitably can be made in the elimination of fixtures, other than accessories, from the dash. Summed up, the whole situation resolves itself into the statement that with due regard to convenience the dash should be kept as free of equipment as possible consistent with proper control of the car.

Acid That Destroys Leather Handles.

Storage batteries that are equipped with leather strap handles always should be handled gingerly and with the full expectation that at any moment the handles may give way and let the battery down with a crash that will ruin it. The reason for this is that the acids which are an inevitable part of lead pipe batteries attack leather and destroy it more quickly than generally is supposed. If immunity from this trouble is desired the straps should be removed and soaked for an hour or so in melted paraffine and then hung up to drain and dry. Though there may be no appreciable slopping of acid it should be remembered that all storage batteries require vents because of the chemical action which takes place in them and that the fumes which are emitted are sufficient to rot the leather.

The Fourth Consecutive Year

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FOR THE TIME PRIZE

1st—Benz	Bosch
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THE WINNERS OF THE CLASS DIVISIONS ALSO USED BOSCH

Class Division 3C—Mercer; Class Division 5C—Lozier; Class Division 6C—Benz.

100 per cent. of the cars to finish used Bosch Plugs—Of Course.

Wishart's Mercedes employed Bosch Magneto and the Bosch Plugs.

Be Satisfied — For 1912 — Specify Bosch



995,858. Internal Combustion Engine. Hugh Francis Fullagar, Newcastle-upon-Tyne, England. Filed Nov. 4, 1909. Serial No. 526,227.

1. An internal combustion engine, comprising two double cylinders arranged close together and twisted at their central portions about one another by a half turn so that the two outer straight portions of each cylinder are brought into line with those of the other cylinder, substantially as set forth.

995,873. Running Gear for Automobiles. Clinton C. Jones and Clinton Bradner Jones, Albuquerque, N. Mex. Filed Apr. 12, 1909. Serial No. 489,453.

1. The combination with the axles of a vehicle, of a frame adapted to support the body of said vehicle, said frame comprising parallel truss members, connections between the truss members, end springs supporting said connections, side springs flexibly connected at one end with said truss members and at the other with said end springs, blocks supported upon said axles and carrying the side springs, compression springs arranged between said blocks and the truss members, and anti friction devices comprising rollers interposed between the said blocks and vertical portions of said truss members.

995,915. Change Gear Mechanism. Allen

Eugene Schmidt, Elizabeth, Ill. Filed Feb. 14, 1910. Serial No. 543,793.

1. The combination with a drive shaft, of a lay shaft; constantly meshing gears fixed to said drive and lay shafts; constantly meshing gears loose on said drive and lay shafts; sprocket wheels rotatably mounted on said drive and lay shafts; a sprocket chain engaging said sprocket wheels and adapted to be connected to drive a driven shaft; means for connecting the drive shaft to the sprocket wheel thereon, simultaneously connecting the loose gear on the drive shaft with the sprocket wheel thereon and the loose gear on the lay shaft with said lay shaft, or simultaneously connecting the loose gear on the drive shaft with said drive shaft and the loose gear on the lay shaft with the sprocket wheel on said lay shaft, substantially as described.

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The one car in America that offers you all that a high grade, high power car can offer; and in addition the tremendous advantages in operation and maintenance which only a perfect valveless motor can give.

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Licensed under Selden patent.

Oakland 1912 Models

30 H. P. to 45 H. P., Ranging in Price from
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Write for Advance Catalogue
Territory Open to Established Dealers

OAKLAND MOTOR CAR COMPANY
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Suggest self-lighting lamp equipment to your customers!—
which means

START-LITE

It lights, reduces or extinguishes the gas lamps by a push of a button, without the necessity of even stopping or reducing the speed of the car. No "last match"; no tramping around in the mud from lamp to lamp. It economizes gas by controlling the proper pressure automatically. Applies to any lamp system using gas or combination gas and electric, giving the driver a finger-tip control of headlights, sidelights and tail lamp, separately. Ask for Booklet illustrating and explaining the reliable START-LITE system.

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"THE MASTER CAR"

35 H. P., \$4,500, Open Bodies; \$5,500, Limousine Bodies

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NEW YORK

SHAWMUT TIRES

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SHAWMUT TIRE CO., Boston, Mass.

995,916. Journal Bearing. Owen Schutt. Hamilton, Ontario, Canada, assignor to International Harvester Company, a Corporation of New Jersey. Filed Dec. 17, 1910. Serial No. 597,837.

1. A journal bearing including, in combination, a rotary element having a central opening therein, a support for said rotary element including a bracket, a thimble integral with said bracket and projecting laterally therefrom, and a bearing block secured to the outer end of said thimble, a cup-shaped casing secured to the said rotary element and inclosing said bearing block, a shell surrounding said thimble and secured to said rotary element, and a sectional dust excluding ring having a rim portion engaging with the periphery of said shell at its inner end and an internal flange portion engaging with the inner portion of the periphery of said thimble.

995,919. Carburetter. Clement Smith. Topeka, Kan. Filed Nov. 2, 1910. Serial No. 590,325.

1. In a carburetter, the combination of a carbureting chamber having an eduction passage for explosive mixture and an entrance for air and also having an interior abutment disposed at a right angle to the said entrance, a spray device having an annular vertically disposed fuel discharge arranged in said chamber and also having annular vertically disposed fuel discharge the said spray device being separated from the wall of the chamber by an annular intervening space and being arranged with its upper side in a horizontal plane slightly below that of the said abutment, and an annular, horizontally-disposed suction-controlled valve located in the chamber above and in the same vertical plane as said discharge and movable vertically away from and toward both abutment and fuel discharge.

995,926. Speedometer. George P. Taylor, Luther, Okla. Filed June 27, 1910. Serial No. 569,183.

1. In a speedometer, a rotary shaft, a governor mechanism on said shaft, a striker operatively connected to the governor mechanism, means to connect the striker operatively to the governor mechanism, a rock shaft, a member projecting from said shaft and adapted to be engaged by the striker, a clapper extending from said rock shaft, a bell adapted to be struck by said clapper, resilient means normally holding said member in position to be engaged by said striker, and means for adjustably holding the member in position relative to the rock shaft.

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Apico Electric Lighting System



made for easy installation on any motor car.

When you have one on your car your lighting troubles will be over. Write us today, giving make and model of your car. We will recommend an outfit exactly suited to it.

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with experimental work on new patents or any new developments.

Or, if you have a specialty you want manufactured, I have the finest kind of facilities and can make attractive quotations.

Send me sketch, blueprint or model. May be I can help you. References.

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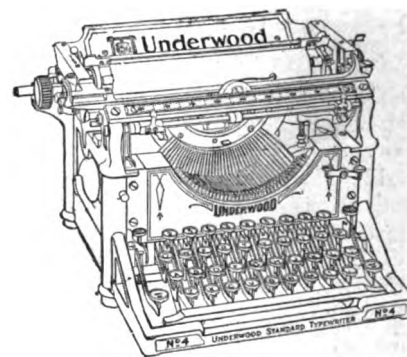
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A few years ago typewriters were used only for letter writing. But it is different today. Their field of usefulness has increased many fold. The UNDERWOOD introduced typewriter bookkeeping and the use of the typewriter for special accounting, recording and statistical purposes.

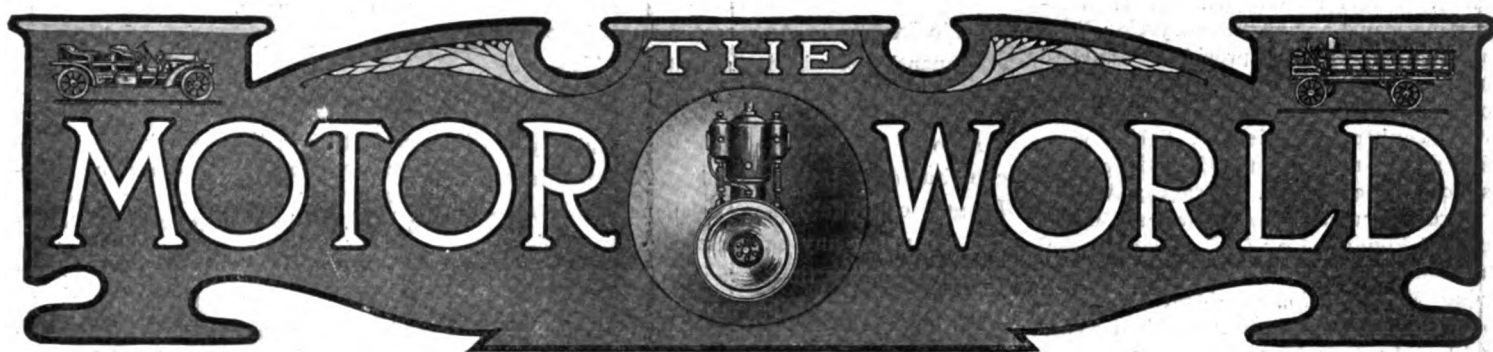
There are over a score of special model Underwoods for special uses. Many corporations use four times as many UNDERWOODS for accounting work as for correspondence.

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COURT TO RULE ON NOBBY TREADS

Two Big Tire Companies at Law Over Right to Their Use—Republic Brings Patent to Bear.

Whether the so-called "nobby," "knobby" or staggered tread is a patentable invention, and whether a patent for a tire tread of that type, granted to one Tod J. Mell in 1908, covers an original and valid invention, shortly will be made known as a result of litigation which now is occupying the attention of Judge Lacombe of the United States Circuit Court for the Southern District of New York.

That the right to use these anti-skid treads was a matter of dispute became generally known on Monday last, 16th inst., when there was called for trial the case of the Republic Rubber Co., of Youngstown, O., against Morgan & Wright, of Detroit, Mich. The plaintiffs claim the exclusive right to use such treads by virtue of their ownership of the Tod patent, No. 898,907, granted September 15th, 1908, and duly assigned to them. Morgan & Wright are charged with infringement of this patent, and the usual accounting and injunction are prayed for.

The case occupied the attention of Judge Lacombe for two days, during the course of which Morgan & Wright, in their defense, held that the Tod patent long had been antedated. In support of their contention they cited bicycle tire treads, which had been illustrated and described in English cycling publications of 1896 and 1898, and also a so-called Duryea tread which Charles E. Duryea, late of Reading, Pa., had ordered made by the Hartford Rubber Works Co. in 1901-03.

After hearing the argument the court took the case under advisement.

Retires from Automobile Business.

A. Massenat, for many years associated with the Panhard & Levassor establish-

ment, as manager of its American branch in New York, has relinquished that office and all other connections with the automobile industry. He has sailed to France for a vacation and on his return will engage in an entirely different business. The management of the Panhard branch has been taken over by Gustave Prost, who for seven years has been Mr. Massenat's righthand man.

Hupp Purchases Site for New Plant.

The Hupp Motor Car Co., of Detroit, has purchased a site of seven acres at Mt. Elliott and Milwaukee avenues in that city, on which it purposes erecting a new factory about three times the size of the one occupied at present. The plans for the new buildings already are in hand.

Ford Building a Foreign Factory.

Although it is not generally known, the Ford Motor Co., of Detroit, is busily engaged in erecting a factory in Manchester, Eng. It will have a capacity of 5,000 cars per year and will supply both the British and Continental markets, in which the Ford cars already are well established.

Whitesides Truck Going to Newcastle.

The Whitesides Motor Truck Co., of Franklin, Ind., has completed arrangements for removal to Newcastle, in the same State. It is understood that it will be affiliated with the same interests which control the Safety Shredder Co.

Republic to Issue Million Preferred.

The directors of the Republic Rubber Co., of Youngstown, Ohio, have voted an issue of \$1,000,000 in preferred stock. The issue is subject to the ratification of the stockholders at a meeting which will occur on November 10th.

Jeffery Sails for Glimpse of Europe.

Charles T. Jeffery, president of the T. B. Jeffery Co., of Kenosha, Wis., sailed yesterday for Europe. He will remain long enough to take a survey of the foreign situation, including the London Show.

SAURER-MACK MERGER COMPLETED

Ten Million Dollar Holding Company With Notable Directorate Assumes Control—Electrics May Be Added.

With several modifications from the earlier plans, the merging of the Saurer Motor Truck Co., of Plainfield, N. J., and the Mack Brothers Motor Car Co., of Allentown, Pa., took place this week, to the extent of their both passing into the control of a \$10,000,000 holding company styled the International Motor Co., incorporated under Delaware laws on the 13th inst. The new company has in it not only the direct Saurer and Mack interests, but also boasts an array of banking and industrial names of prominence in its directorate.

While for the present the manufacturing end of the business will be conducted by the Saurer and Mack companies on the same lines as heretofore, as separate and distinct organizations, the selling management and general supervision of both companies have been combined and taken over by the International company. A combined output of 2,000 trucks from the two factories is planned for the coming fiscal year, but the development of the selling organization is to be carried forward on a scale looking to great expansion of production thereafter. The branches and the agencies of the subsidiary companies now bear the same relations to the International company, in addition to which the latter also will conduct in all of the principal cities service stations for the maintenance of Mack and Saurer trucks.

Electric trucks also may be added to the company's offerings, though this phase of the future is one that the officers are as yet unwilling to discuss.

The officers and directors of the International Motor Co. are: President, C. P. Coleman; chairman of board, W. D. Sargent; vice-president, J. M. Mack; treas-

urer, F. C. Richardson; secretary, Vernon Munroe. Directors, Otis H. Cutler, president American Car and Foundry Co.; Benjamin Strong, Jr., vice-president Bankers' Trust Co.; Arthur H. Lockett, of Pomroy Bros., bankers; Hunter Marston, of Blair & Co., bankers; Charles H. Sabin, vice-president Guaranty Trust Co.; George B. Case, of White & Case, attorneys; William G. Parce, vice-president American Brake Shoe and Foundry Co.; C. P. Coleman, formerly secretary and treasurer of Singer Sewing Machine Co., president of Saurer Motor Co.; W. D. Sargent, president Reading Steel Casting Co.; Herbert H. Dean, of Edward B. Smith & Co., bankers; John M. Mack, president Mack Bros. Motor Car Co.; Joseph S. Mack, treasurer Mack Bros. Motor Car Co.; Montgomery Hare, attorney; Thomas E. Rush, attorney; Warren A. Wilbur, president E. P. Wilbur Trust Co.; Harry W. Davis, secretary Delaware Trust Co.; Martin E. Kern, vice-president Mack Bros. Motor Car Co.

The general offices of the company will be at 30 Church street, New York City, on the 20th floor of the Hudson Terminal building, where the offices of the Saurer company will be greatly enlarged to meet the new conditions.

Before the negotiations for the merger had reached a consummation it was indicated that the basis for the merger would be the net quick assets of the Saurer and Mack companies. The Saurer company was capitalized at \$1,600,000 and the Mack company at \$1,000,000, giving a combined capitalization of \$2,600,000. How nearly the net quick assets of the companies approach this figure is not disclosed, nor is it indicated what proportion of the \$10,000,000 capital stock of the International Motor Co. goes to the acquiring of the Saurer and Mack companies and what proportion is to be represented by new cash capital, the acquirement of additional properties or patent rights, and distributions for promoting and underwriting. Efforts to get President Coleman, who also is the head of the Saurer company, to make any statement concerning the \$10,000,000 capitalization or whether it implies further extensions, have met with polite refusal.

Brown-Sautter Truck is Reorganized.

The Brown-Sautter Motor Truck Co., of 893-895 Frelinghuysen avenue, Newark, N. J., has been reorganized with the following officers: President and secretary, R. G. Chace; first vice-president, G. W. Sautter; second vice-president, Benjamin F. Stephens; treasurer, Harry Sautter. In addition to these officers the board of directors comprises R. C. Jenkinson, Edward T. Ward, Colonel Allan B. Wallace, Adolph Hensler, E. Alvah Wilkinson, Dr. Ludwig R. Sattler and John E. Brown. As a result of the reorganization the company expects to be enabled to carry out its original plans and to prove a real factor in the trade.

LEAGUE CAN'T EVEN BUY KLAXONS

Buffalo Institution Is Sweepingly and Permanently Enjoined—Is Notified Also That it is "Objectionable."

Among the wares which the peculiarly constituted International Automobile League, of Buffalo, N. Y., can neither buy nor sell under any circumstances or conditions, or at any time, are the Klaxon and Klaxonet horns. This perpetual and far-reaching prohibition has been placed on the so-called League as a result of an action brought by the Lovell-McConnell Mfg. Co., of Newark, N. J., which controls the Klaxon patents and product. The Lovell-McConnell people have also served formal notice on the league that it is "objectionable" to them as makers of the Klaxon devices, and that any sale of these articles by the league will constitute a violation of the Klaxon license.

The Lovell-McConnell suit was instituted in the United States Circuit Court for the Western District of New York, and charged infringement of the basic Klaxon patents, Nos. 923,048, 923,049 and 923,122, the infringement having been committed by cutting the price of the Klaxon horn and otherwise violating the terms of the license set forth on the tag sealed to every Klaxon and Klaxonet before they are placed on the market.

The case came before Judge Hazel, in Buffalo on September 26th, and as a result of the evidence submitted he granted the permanent injunction asked for. The decree, in the usual language of such decrees, not only forbids the league from directly or indirectly making, or causing to be made, used or sold any horns or articles embodied in the Klaxon patents, or infringing or violating them in any way whatsoever, but also prohibits it "from purchasing, using or selling, directly or indirectly any of the complainants' horns marketed and sold by complainants under their conditional licenses set forth in tags or labels upon or secured to said horns, unless in accordance with each and all the terms of said conditional license."

This Klaxon conditional license contains an express stipulation against selling the Klaxon devices at cut prices, and also the following provision: "No license whatever is granted for purchase or sale by anyone who has been notified that he is objectionable to makers; nor for purchase to or through, or sale by or to any person, company, concern or association which offers or affords purchasers or users any membership, profit sharing or co-operative right or privilege."

It was in accordance with the terms of this latter provision that the Lovell-McConnell company has notified the league that it is "objectionable"—which suggests

trouble for anyone who should try to sell Klaxons to the league.

Factory Completed for Newark Truck.

The Newark Motor Car Co., of which Joseph J. Rafter is president, and which will manufacture a light truck, has completed the erection of its factory on Bigelow street, near Frelinghuysen avenue, Newark, N. J., and is about ready to begin active operations. The new factory is a one story brick structure, 125 feet by 75 feet. A two story building also is in course of erection, part of which will be occupied by the Commercial Car Sales Co., a subsidiary, which will market the product of the Newark factory. Incidentally, the number of directors of the Newark Motor Car Co. has been enlarged from five to seven, the two new directors chosen being H. V. Radowitz, of Elizabeth, Pa., and Carl W. Johnson, secretary of the English & Mersick Co., of New Haven, Conn.

Elmira Prepares to Honor Willys.

Evidence that John N. Willys, president of the Willys-Overland Co., Toledo, Ohio, is full of honor in his home town, will be given on Tuesday, October 31st, when a complimentary banquet will be tendered him by the Elmira Chamber of Commerce and the Elmira Business Men's Association. It was in Elmira—the one in New York State—that Willys made his first real start on the road to industrial achievement and he not only retains his interest in the Elmira Arms Co., in which he began his career, but several months since he revisited the city and erected a plant which produces some of the fittings that go into the Overland car.

Prest-O-Lite Gets Two More Injunctions.

In the United States Circuit Court in Indianapolis, on the 5th inst., Judge Anderson issued injunctions restraining Orin K. Stuart and the Autogas Co. from further infringement of the Prest-O-Lite patents. The Autogas Co. had been charged with manufacturing tanks which infringed the patents, and Stuart with having recharged these autogas tanks. The suits, of course, were prosecuted by the Commercial Acetylene Co. and the Prest-O-Lite Co.

Scioto Company Changes Its Title.

The Scioto Auto-Car Co., of Chillicothe, Ohio, has changed its title to the Arbenz Car Co., taking its name from the car which it has manufactured for the past several years. The car in turn is named for F. C. Arbenz, who is secretary-treasurer and general manager of the company.

Kelly-Racine to Double Capitalization.

The Kelly-Racine Rubber Co., of Racine, Wis., has called a meeting of its stockholders, to occur to-morrow, for the purpose of increasing its capital stock to \$1,000,000. At present it stands at half that sum.

MADE SPRING REPAIRERS MULTIPLY

Morris and Grinberg Accused of Performing a "Miracle"—Conflicting Story of Job Lot Sale.

Adolph Morris and David Grinberg, who played picturesque parts before and since they began trading in New York under the style the Manhattan Storage Co., were on Monday last, in the person of their counsel, before Judge Hazel sitting in the United States Circuit Court for the Southern District of New York, charged by the Auto Spring Repairer Co. with having, after a fashion, emulated the loaves and fishes parable not wisely but too well. Specifically the complaint charges the Manhattan storage pair with having infringed patent No. 899,468, which was granted September 22nd, 1908, to William R. Petze, and which covers an automobile spring repairer.

The manner of infringement was considerably out of the usual. According to the complaint and the evidence presented the Manhattan Storage Co. in 1907 placed an order for a number of the patented spring repairers, all of which were supposed to have been disposed of. In the latter part of 1909 the Auto Spring Repairer Co., to which Petze had transferred his patent and from which he then had withdrawn, discovered that a large quantity of devices strikingly similar to those of its own production had appeared on the market. Convinced that they were not of their handiwork the Repairer people say they traced the imitations to the Manhattan Storage Co. They certainly filed suit in the United States Circuit Court in New York, and as a result of this litigation they obtained a preliminary injunction from Judge Hand, which forbade the Storage company from making or selling the alleged infringing device pending a decision of the case. Twice during last year Morris and Grinberg applied, first to Judge Coxe and later to Judge Ward, seeking to have the injunction vacated, but in both instances their application was denied.

The facts in the case were brought out in the argument for an accounting and a permanent injunction, which was before the court on Monday last. In their defense, Morris and Grinberg held that the alleged counterfeit repairers traced to them were manufactured out of a job lot of parts for 1,500 repairers purchased from the Repairer company. The latter, however, maintained that the job lot purchased by the Storage pair was sufficient for the production of scarcely 100 repairers. How Morris and Grinberg could perform the miracle of making 15 repairers out of material sufficient for but one was not made wholly clear to the lay mind, but served to stimulate imagination.

Judge Hazel probably will render his decision on Monday next, when final arguments will be heard.

Willis Twice Elected Vice-President.

Fred I. Willis, of the Hearsey-Willis Co., Indianapolis, who recently acquired a block of stock in the Kokomo Rubber Co., of Kokomo, Ind., has been elected vice-president thereof. George H. Hamilton, who at the same time secured a similar financial interest in the Kokomo concern, has been chosen sales manager. D. C. Spraker remains president, D. L. Spraker, treasurer, and George W. Langdon, secretary. As Willis's new interests will require that he divide his time between Kokomo and Indianapolis, he has resigned the secretary-treasurership of the Hearsey-Willis Co., and has been succeeded by Robert H. Coburn, of Atlanta, Ga. Willis, however, will retain identification with the Hearsey-Willis Co., as following his resignation as secretary-treasurer he was at once elected vice-president.

Georgia to Get a Michigan Plant.

According to reports from Georgia, J. E. Keith, who is described as the "general manager of the Howard automobile plant, of Jackson, Mich.," has induced the citizens of Macon, Ga., to subscribe \$200,000 to bring the plant from Jackson to Macon for the organization of a new company there. It is stated that a factory will be erected and that the car will be called the Macon.

Boston Lists General Motors' Securities.

Following the example of the New York Exchange, the governing committee of the Boston Stock Exchange has formally admitted to listing the securities of the General Motors Co. The securities comprise 123,113 shares of preferred stock voting trust certificates and 13,022 shares of common stock voting certificates; provision also is made permitting an increase of these amounts.

Prest-O-Lite to Make Self-Starters.

Quick to appreciate that self-starting devices at last have attained real importance, the Prest-O-Lite Co., of Indianapolis, is almost ready to place on the market an invention of the sort which will be operated by acetylene gas. The Prest-O-Lite self-starter will be sold at a popular price, and it is such that it may be easily attached to any standard make of car.

Another German Bearing for America.

Reuben Allerton and Joseph Schaeffers, of New York, who have associated with the automobile industry, have secured the United States agency for the German H. C. B. Ideal ball bearings, and to market them have formed the Steel Products Import Co., capitalized at \$50,000. They have opened offices at 50 Church street, New York.

BLOOD TO LEAD ELECTRIC MAKERS

Bostonian Re-elected President of Their Association—Other Officers Retained—Topics Discussed in Convention.

Electric vehicle manufacturers, their agents and sales representatives and the central station men, to whom the electric motorist must turn for charging current for his batteries, held their second convention Tuesday, 10th inst., on the occasion of the annual meeting of the Electric Vehicle Association of America in New York. About 300 were in attendance at the morning, afternoon and evening sessions, and it is noteworthy evidence of the interest displayed in the topics presented that although the final meeting was prolonged until 11 o'clock the audience was not visibly diminished. During the year that has elapsed since its formation the ranks of the association have swelled to 200, while enthusiastic members do not hesitate to attribute the marked increase in electric vehicle business during the past twelve months in large measure to the general publicity campaign which the association has conducted through the medium of periodicals and the daily press.

The election of officers, which was the first item on the program of official business, resulted in the reinstatement of the entire standing board, as follows:

W. H. Blood, Jr., Stone & Webster, Boston, Mass., president; Arthur Williams, the New York Edison Co., New York City, vice-president; C. E. Firestone, Columbus Buggy Co., Columbus, Ohio, secretary; Harvey Robinson, the New York Edison Co., New York City, assistant secretary.

Directors: H. H. Rice, the Waverley Co., Indianapolis, Ind.; F. W. Smith, United Electric Light & Power Co., New York City; P. D. Wagoner, General Vehicle Co., Long Island City, N. Y.; Louis Burr, Woods Motor Vehicle Co., Chicago, Ill.; W. P. Kennedy, Studebaker Automobile Co., South Bend, Ind.; Frank L. Dyer, Edison Storage Battery Co., Orange, N. J.; James T. Hutchins, Rochester Railway & Light Co., Rochester, N. Y.; Louis A. Ferguson, Commonwealth Edison Co., Chicago, Ill.; W. W. Freeman, Edison Electric Illuminating Co., Brooklyn, N. Y.; F. M. Tait, Dayton Lighting Co., Dayton, O.; Hayden Eames, Society for Savings Building, Cleveland, O.; Charles Blizard, Electric Storage Battery Co., Philadelphia, Pa.

The invitation of the Boston Edison Illuminating Co., to hold the next convention in Boston in season for the electric show there next fall, was referred to a committee without debate. The invitation of the management of the electrical show now running in Grand Central Palace, New York, was accepted by the delegates, the

convention itself being in the nature of an opening function for the motor vehicle display of that exposition.

The set program, which, with the discussion of the papers, served to crowd every moment of the meeting, comprised these papers:

Morning Session — "Electric Vehicle Commercial Problems," R. L. Lloyd and John Meyer of the Philadelphia Edison Co.; "An Accounting System for Electric Trucks," E. W. Curtis, Jr., assistant to the president of the General Vehicle Co., New York; "Proper Illumination of the Electric Garage" (illustrated by stereopticon views), J. G. Henninger, of the National Electric Lamp Co., Cleveland, Ohio.

Afternoon Session — "Effect of Low Temperatures on the Alkaline Battery," W. E. Holland, of the Edison Storage Battery Co., Orange, N. J.; "The Electric Vehicle in Smaller Cities," F. N. Golding, of the Rockford Electric Light Co., Rockford, Ill.; "Vehicle Battery Practice in Central Station Companies," S. C. Harris, of the New York Edison Co.; "The Battery Truck Crane and Its Applications," R. H. Rogers, of the General Electric Co., Schenectady, N. Y.

Evening Session — "Impediments to the General Introduction of Power Wagons," Hayden Eames, Cleveland, O.; "The Central Station Back of the Electric Vehicle" (supplemented by motion pictures), E. S. Mansfield, Boston Edison Illuminating Co.; "Some Comments on Moving City Freight With Electric Current," William P. Kennedy, consulting engineer, New York City, N. Y.

M. A. M. Adds Twenty-five to Roll.

Twenty-five new members were admitted to the Motor and Accessory Manufacturers at the October meeting of the Board of Directors, as follows: Automobile Supply Mfg. Co., Brooklyn, N. Y.; The Batavia Rubber Co., Batavia, N. Y.; Bower Roller Bearing Co., Detroit, Mich.; The Buda Co., Harvey, Ill.; Carnegie Steel Co., Pittsburgh, Pa.; Detroit Electric Appliance Co., Detroit, Mich.; Doehler Die Casting Co., Brooklyn, N. Y.; The Eagle Co., Newark, N. J.; The Esterline Co., Lafayette, Ind.; Falls Machine Co., Sheboygan Falls, Wis.; Federal Rubber Mfg. Co., Cudahy, Wis.; The Hess Spring and Axle Co., Carthage, O.; International Acheson Graphite Co., Niagara Falls, N. Y.; Jacobson-Brandow Co., Pittsfield, Mass.; The G. Piel Co., Long Island City, N. Y.; The Simms Magneto Co., New York, N. Y.; The Start-Line Co., Chicago, Ill.; Stutz Auto Parts Co., Indianapolis, Ind.; The United Rim Co., Akron, O.; Universal Tire Protector Co., Angola, Ind.; Universal Wind Shield Co., Chicago, Ill.; Voorhees Rubber Mfg. Co., Jersey City, N. J.; Waukesha Motor Co., Waukesha, Wis.; Widmer Machine Works, New York, N. Y.; Wolverine Lubricants Co., New York, N. Y.

M. A. M. LINE-UP FOR BOSTON SHOW

Fair Representation for Both Weeks of New England Exhibition—Members Who Have Booked Space.

In addition to allotting their share of the space at the Madison Square Garden show in New York and the show in the Coliseum in Chicago, as detailed last week, the Motor and Accessory Manufacturers have also apportioned their space for both weeks of the Boston exhibition. How the M. A. M. members view the respective pleasure car and commercial car sections of the latter function is evidenced by their selections, as follows:

For Two Weeks.

Ajax-Grieb Rubber Co., The Baldwin Chain & Mfg. Co., Bosch Magneto Co., S. F. Bowser & Co., Coes Wrench Co., Columbia Lubricants Co., Consolidated Rubber Tire Co., Continental Caoutchouc Co., The Wm. Cramp & Sons Ship & Engine Building Co., The Dean Electric Co., The Diamond Rubber Co., The Electric Storage Battery Co., Empire Tire Co., Firestone Tire & Rubber Co., The Fisk Rubber Co., G & J Tire Co., The B. F. Goodrich Co., Gray & Davis, A. W. Harris Oil Co., The Hartford Rubber Works Co., Hartford Suspension Co., The Hofecker Co.

The Jones Speedometer Co., Leather Tire Goods Co., J. Ellwood Lee Co., Morgan & Wright, A. R. Mosler & Co., The Motz Clincher Tire & Rubber Co., National Carbon Co., N. Y. & N. J. Lubricants Co., Pennsylvania Rubber Co., Remy Electric Co., C. F. Splittdorf, Swinehart Tire & Rubber Co., Vacuum Oil Co., The Veeder Mfg. Co., Federal Rubber Mfg. Co., International Acheson Graphite Co., United Rim Co., Jacobson-Brandow Co., Goodyear Tire & Rubber Co.

For First Week Only.

Allen Auto Specialty Co., Apple Electric Co., Auburn Auto-Pump Co., Booth Demountable Rim Co., Borne-Scrymser Co., Champion Ignition Co., Adam Cook's Sons, Jos. Dixon Crucible Co., Dorian Remountable Rim Co., Dover Stamping & Mfg. Co., Gabriel Horn Mfg. Co., Havoline Oil Co., George A. Haws, Heinze Electric Co., W. H. Leland & Co.

Lovell-McConnell Mfg. Co., Michelin Tire Co., National Coil Co., National Tube Co., Oliver Mfg. Co., The Pantasote Co., Pittsfield Spark Coil Co., The Republic Rubber Co., Wm. C. Robinson & Son Co., C. A. Shaler Co., Stromberg Motor Devices Co., Valentine & Co., Vesta Accumulator Co., Warner Gear Co., Warner Instrument Co., Weed Chain Tire Grip Co., The White & Bagley Co., Detroit Electric Appliance Co., The G. Piel Co., The Esterline Co., The Batavia Rubber Co., Voorhees Rubber

Mfg. Co., Wolverine Lubricants Co., The Connecticut Telephone & Electric Co.

For Second Week Only.

Ross Gear & Tool Co., Standard Roller Bearing Co., Whitney Mfg. Co.

Changes Among Prominent Tradesmen.

Paul L. Roche, well known in Boston trade circles, has become associated with the F. E. Wing Motor Car Co., New England agents of the Marmon car.

Robert Jardine, long associated with the Royal Tourist interests, who recently joined the engineering staff of the T. B. Jeffery Co., of Kenosha, Wis., has relinquished that connection.

H. B. Curtiss, who previously was connected with the Pierce-Arrow factory, has been made superintendent of the service department of the Stevens-Duryea Co.; he will be at the Chicopee Falls factory.

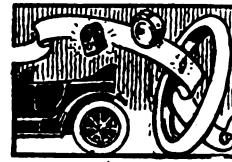
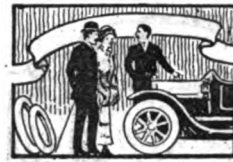
Ole Hibner, formerly president of the Central Tire & Rubber Co., of Omaha, Neb., and later head of the Hibner Sales Co. of that city, has been appointed sales manager of the newly formed Knight Tire & Rubber Co., Canton Ohio. He, of course, will make his headquarters at the factory in Canton, which is in course of erection.

W. W. Garrison, for several years with Lord & Thomas, of Chicago, and managing editor of Judicious Advertising, has resigned from the Chicago agency and joined the advertising staff of the Hudson Motor Car Co. of Detroit. He will be associated with C. C. Winningham, director of Hudson advertising, who once was chief of Lord & Thomas's copy staff.

J. E. Lewis, who at one time was identified with the Hartford Auto Parts Co., has become manager of the recently organized Tube Bending & Polishing Machine Co., of Baltimore, Md. Among other things the company will market seamless copper pipe bends and manifolds for motor connections, made by patented processes which it controls and which avoid soldered joints.

W. P. Kennedy, formerly sales manager of the electric vehicle department of the Studebaker Brothers Automobile Co., of New York, but who more recently has been devoting his time to consultation work, has been retained by the Baker Motor Vehicle Co., of Cleveland, in an advisory capacity. He will devote his time mainly to sales work and the development of garage systems for users of Baker equipment.

S. L. Stone, for the past three years assistant sales manager of the Oakland Motor Car Co., Pontiac, Mich., under J. B. Eccleston, has been appointed manager of the Centaur Motor Co., of Buffalo, which handles the Oakland car in Western New York and Pennsylvania. As he previously was associated with Eccleston when the latter was in the automobile business in Buffalo, it follows that Stone is no stranger to the trade in that city and vicinity.



Albert Yackley is erecting a public garage at Valley Spring, S. D.

David J. Crimmins has opened a garage and livery business in Cambridge, N. Y.

The Lovell Motor Sales Co. has "opened up" in Los Angeles, Cal. It will handle the Colby line.

Schneider & Held is the style of a new firm which has opened a garage and salesroom in Hinton, Ia.

The Auto Parts Sales Co. has opened a salesroom at 3408 Lindell avenue, St. Louis, Mo. C. D. Robinson is the general manager.

James Mitchell is building a garage at the corner of Vreeland avenue and East 35th street, Paterson, N. J. It will cost \$2,000.

Willard Loomis, of Wellston, Ohio, and J. L. Fleming, of Logan, in the same State, have opened a garage, livery and supply business at Wellston.

Claude McAuley has opened a repair shop at 950 Canal street, Grand Rapids, Mich. He will do business under the style the Creston Auto Co.

J. M. Wolf and F. C. Beting, both of the town of Albert Lea, Minn., have formed a partnership and opened a garage in Fairmont, in the same State.

Biwabik, a small village in Minnesota, now boasts of an up-to-date brick garage with cement floor, 50x70 feet in extent. It is owned by C. J. Verrill.

The North Star Iron Works, of Owatonna, Minn., has added automobile repairing to its other enterprises and opened a garage in a building adjoining the factory.

Alexander Allen has broken ground for a garage on Highland avenue, near Germantown avenue, Philadelphia, Pa. It will be two stories high, of stone and brick construction.

J. Larkin is building a garage to cover the block from 24th to 25th streets, west of Eleventh avenue, New York City, at a cost of \$20,000. It will be 197.7 x 150 feet, one story high.

Charles G. Andrews and M. A. Dykeman have formed the Moon Motor Car Co. of New England, with headquarters in the Motor Mart, Boston, Mass. As the name indicates Moon cars will be handled.

Harry Endicott, of racing fame, will manage the garage which is being built on the southeast corner of Avenue P $\frac{1}{2}$ and Tremont street, Galveston, Tex. The garage is owned by Moritz O. Kopperl.

Clarence Heiderschide has formed a partnership with C. H. Wedding, who con-

ducted a garage at Jerseyville, Ill. They will operate under the style of Wedding & Heiderschide and sell Ford and Reo cars.

H. R. Stone has been appointed receiver for the Hazen Automobile Co., of Memphis, Tenn., on the petition of the Security Bank and Trust Co., representing the creditors of the company. The assets and liabilities have not been made public.

The Marmon Motor Car Co. is the style of a new concern which has opened salesrooms at 221 East Sixth street, Waterloo, Ia., with G. W. Kimball as general manager. As the name indicates Marmon cars will be handled exclusively.

White uniforms for its chauffeurs will be the advertisement of a new garage which is in course of construction for the Auto Owners Service Co., at 15-17 East Pratt street, Indianapolis, Ind. The building is 106 x 122 feet, two stories high and will cost \$10,000.

The New York City salesroom of the Oakland Motor Car Co., which formerly was located at 1659 Broadway, has been moved to 1600 Broadway, near 55th street. Roger R. Hall is in charge of the salesroom, which will be operated as a direct factory branch.

Lawrence Kittell, an engineer on the Chicago & Northwestern R. R., and Charles W. Collier, a former grocer, have formed a partnership and opened a garage and salesrooms at 510 South Monroe street, Green Bay, Wis. They will do business under the style the Fox River Motor Car Co., selling Ford cars.

W. J. Kirkland, who is secretary of the Omaha Motor Club, and George V. Hicken have formed a partnership under the style the Kirkland-Hicken Co., and opened salesrooms and offices in the Brandeis Theater building, Omaha, Neb. They will act as sales agents for a number of accessory manufacturers.

Theodore E. Schulz, a member of the one-time firm of Homan & Schulz, and one of the earliest automobile dealers in New York City, has filed a petition in bankruptcy, which lists his liabilities at \$8,748 and his assets at \$6,412. The latter consist of cash \$3, accounts \$357 and claims for damages \$6,052.

George W. Houk, who until a few weeks ago was manager of the Oldsmobile branch in Boston, has filed a voluntary petition in bankruptcy. His liabilities are \$42,080, all unsecured, and his assets \$45,76. Most of the creditors are in Lon-

don, England, where Houk was in business several years ago.

A. G. Albrecht, formerly connected with the Dayton's Bluff Auto Co., St. Paul, Minn., has purchased an interest in the White Bear Auto Co., 199 West Fifth street, in the same city. A. J. Diamon is the other partner of the company, which sells Regal, Oakland, Firestone-Columbus gasoline cars and Columbus electrics.

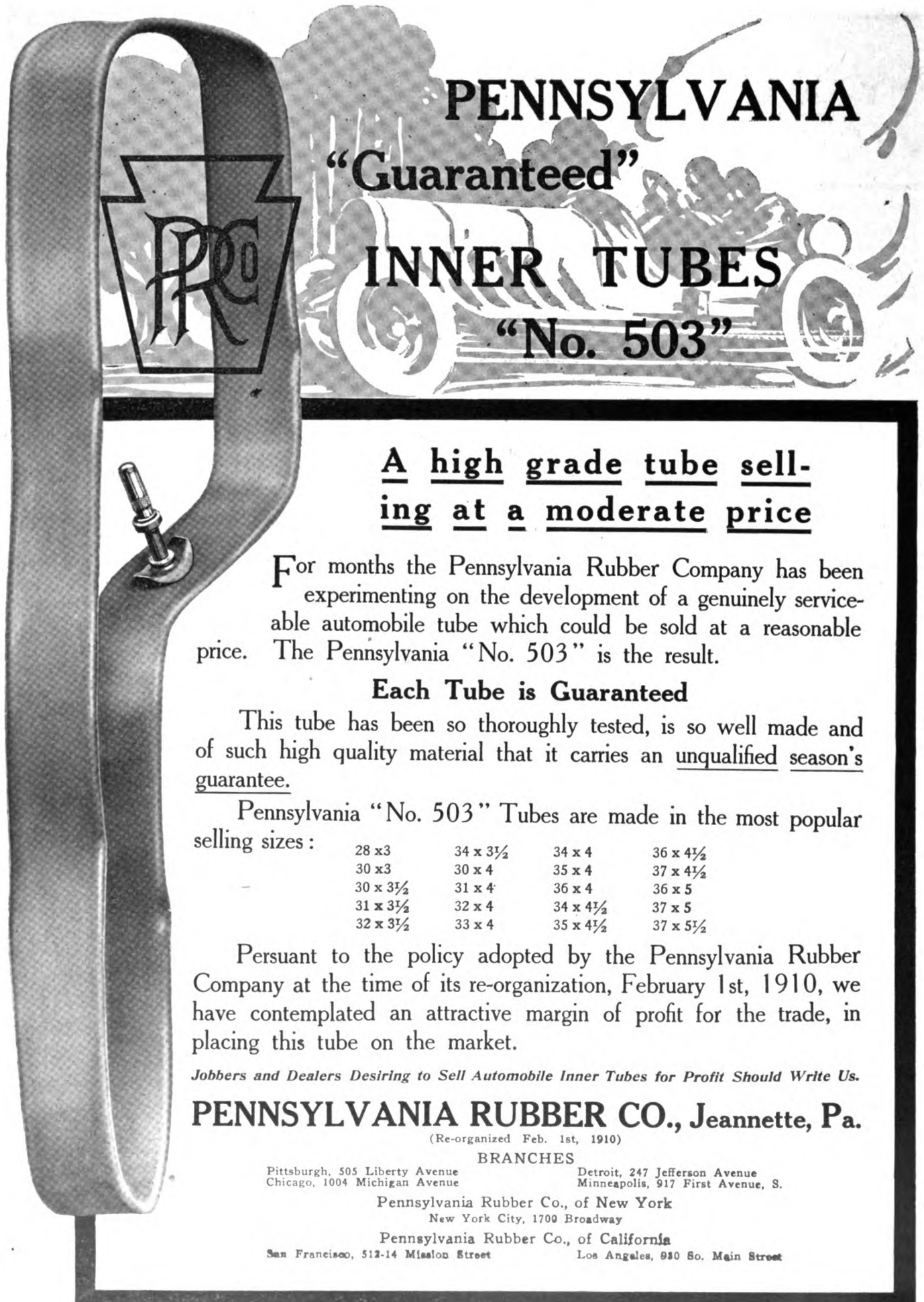
A petition in involuntary bankruptcy has been filed by Joseph B. Roberts against the Brown Auto Sales Co., of Ridgewood, N. J. Roberts, who is a director of the company, as well as a creditor, filed the petition and immediately accepted service in behalf of the company. The liabilities and assets of the company are not given.

The Yeggy-Trevor Motor Co., which operated a garage and salesroom in Rock Island, Ill., has been dissolved, A. W. Trevor retiring from business. His partner, G. A. Yeggy, will continue the business under his own name, relinquishing the Overland agency, which was held individually by Trevor, but continuing the agency for Knox gasoline and Woods electric cars.

Emil Metzger, proprietor of the Reliance Garage, 100 South Madison avenue, Peoria, Ill., has been sued for \$10,000 damages. The complaint alleges that when Metzger purchased the Central City Garage he agreed not to start a taxicab business until after 1915, but that instead he already is operating a taxicab livery. The damages asked are for violation of this agreement.

Schedules in the bankruptcy proceedings against the Victor Auto Supply Co., of New York City, show liabilities of \$33,355 and assets of \$1,828 in cash and tools. Frank J. Dorlan, the hotel clerk, who was president of the company and who was sentenced to prison last week for embezzlement is listed among the creditors, with \$25,202. He used most of the hotel money, which he stole, to keep the supply company afloat.

The Oldsmobile Co. of Minnesota, which has been incorporated to do business in that State and which has taken over the Olds agency in Minneapolis, has secured temporary quarters at 1202 Hennepin avenue. Later it will locate in a fine new building at No. 1629 on the same avenue. W. J. Mead, general manager of the Olds Motor Works, is president of the Minnesota company, R. N. Mosher is treasurer, Standish Backus, secretary, and F. R. Barlow, manager.



PENNSYLVANIA

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30 x 3½	31 x 4	36 x 4	36 x 5
31 x 3½	32 x 4	34 x 4½	37 x 5
32 x 3½	33 x 4	35 x 4½	37 x 5½

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PUBLISHED EVERY THURSDAY BY

The Motor World Publishing Co.

A. B. SWETLAND.....President

F. V. CLARK.....Secretary-Treasurer

R. G. BETTS.....Managing Editor

154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
 Single Copies (Postage Paid) . . . 10 Cents
 Foreign and Canadian Subscriptions . . . \$3.00
 Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
 Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, OCTOBER 19, 1911.

Automobiles for Municipal Service.

Despite the many stumbling blocks which beset the paths of the municipal engineer and the manufacturer who is anxious to see his product installed in city service, the opportunities for automobile development which the modern city presents are manifold and most alluring. Furthermore, there can be no question that in process of time practically all of the enormous transportation of cities will be carried by automobiles. With the more general use of motor vehicles by individuals and private corporations heavy contracts for passenger vehicles and trucks destined for city service logically are bound to follow. Special apparatus for street cleaning, garbage disposition, street repairing and even remote works are plainly evident as future realities.

Yet at the present time the fire departments alone seem to have mastered the problem of successful introduction and put

the municipal motor car on a safe and sane footing alike with the administration and the taxpayer, though they have done so not so much by superior acumen as by the very urgency of their need. As far as passenger conveyances and standard commercial trucks are concerned, the situation still is troublesome.

The average tradesman who has dodged the sharp corners of ancient charter regulations, circumventing tricky modern ordinances and wrestling with problems of graft and incompetence is apt to be in the frame of mind of one of the class who declared himself as "sick of the whole blamed smear." From the mercantile point of view there is very little money in the municipal market at present; that is, where fair standards of civic honesty prevail.

Observers who have watched the development of New York's interesting experiment, some of the details of which are printed elsewhere in these columns, are gratified to learn that a measure of slow but certain progress is being made. In at least one department the expensive and discreditable practice of joy-riding has been reduced to terms by the adoption of a simple cross-check system of accounting such as any other business corporation than that of a great city would have seen the need of from the very beginning. Henceforth in that department whatever joy-riding is done will be done through the breaking down of the system. In other words—and taking this practice as symbolic of all that goes to make New York's automobile experiment a costly one—everything depends on the administration.

The way to betterment has been made plain enough for all to see. Just as is true with any other installation of business vehicles, the first step is to determine through a standard accounting system what the transportation needs really are; the second, to determine what sort of equipment best will satisfy them; the third, to adopt a routine method of operation; the fourth, to put that system into operation and see that it is not broken down.

As business corporations, big cities are more or less like overgrown and very naughty boys. They mature slowly, but they are full of promise and they generally come out all right in the end. Incidentally, the present and seemingly exorbitant cost of operating New York's ill-assorted and tattered array of motor cars will bear close analysis. Scandalously high it un-

doubtedly is, but by comparison with other of the city's expenditures, the glories of its shame diminish. And when its direct effect in reducing the outlay for horse upkeep is contemplated the effect is most cheering, for it indicates something of what eventually will be brought about.

Position of the Electric Vehicle.

Whether due largely to the activities of the Electric Vehicle Association of America, as some supporters of that promising organization would have it believed, or wholly to natural processes, the fact remains that the cause of the electric vehicle is being strengthened very rapidly. This is particularly true of the commercial vehicle, a circumstance which alone leads to the supposition that, with all deference to strong publicity efforts, logic and business economy have had a great deal to do with the case. While the upbuilding of the entire commercial vehicle industry has been rapid and most encouraging since the movement really gained appreciable headway, it would seem that in the realm of the delivery wagon the progress of the electric has been more rapid than that of the light gasoline car.

This conclusion points directly to the segregation of apparatus according to service and the practical isolation of the electric in the short-haul field—which is just what its advocates have claimed to be its proper sphere. Some of them go even further than this and allege that properly speaking no real rivalry should exist between the two classes of equipment. Assuming that the operators of large installations, whose interests naturally lie in the direction of highest efficiency, really have studied the problem from all possible points of view, it certainly is significant that their purchases contemplate principally the use of the gasoline machine in long-haul, heavy duty service.

"The field of the light gasoline car is so well defined in long-haul, light load service and in circumstances which demand running over bad roads and, similarly, the advantages of the electric are so marked where the runs are short and the pavements uniform, that the natural separation between the two classes of machine should be perfectly evident," said one man in discussing the point. "Saving in the imagination of over-zealous salesmen there never was any real rivalry between the electric and the gasoline car."



Philadelphia, Pa.—Quaker City Supplies Co., under Pennsylvania laws, with \$10,000 capital; to deal in automobiles and accessories.

Grand Rapids, Mich.—Cogswell Motor Car Co., under Michigan laws, with \$10,000 capital; to manufacture and deal in automobiles and motors.

Soranton, Pa.—Eureka Motor Car Co., under Pennsylvania laws, with \$25,000 capital; to manufacture and deal in automobiles and accessories.

Chicago, Ill.—Harbeck Motors Co., under Illinois laws, with \$50,000 capital; to manufacture motors. Corporators—A. T. Ewing, E. S. Hartman, C. Bender.

Chicago, Ill.—Chicago Motor Omnibus Co., under Illinois laws, with \$1,000 capital; to operate motor vehicles. Corporators—Henry P. Schandler, J. M. Johnston, K. Cornwell.

Kenosha, Wis.—Purdy Garage Co., under Wisconsin laws, with \$10,000 capital; to deal in automobiles and maintain a garage. Corporators—Frederick Purdy, C. H. Nellis.

Pella, Iowa—The Pella Motor Car Co., under Iowa laws, with \$10,000 capital; to operate and deal in automobiles. Corporators—W. H. Fowler, H. P. Van Grop, E. J. Van Grop.

Albany, N. Y.—The Tri-City Motor Co., under New York laws, with \$5,000 capital; to deal in automobiles. Corporators—Rutherford B. Hayes, Harold F. Andrews, Arthur S. Andrews.

Buffalo, N. Y.—The Baker Bros. Motor Co., under New York laws, with \$10,000 capital; to deal in automobiles. Corporators—Edward Green, Edward H. Baker, Clarence W. Baker.

Fond du Lac, Wis.—Service Motor Co., under Wisconsin laws, with \$5,000 capital; to deal in automobiles and motor vehicles. Corporators—W. T. Mitchell, E. G. Mitchell, W. A. Meikeljohn.

Indianapolis, Ind.—Madden-Copple Co., under Indiana laws, with \$1,000 capital; to repair automobiles and motor vehicles. Corporators—Thomas Madden, Tom E. Madden, Elbert Copple.

Chicago, Ill.—University Taxi Service Co., under Illinois laws, with \$2,500 capital; to operate taxicab and livery business. Corporators—Frank H. Drury, W. Perry Hahn, Walter D. Launder.

Jersey City, N. J.—Sterling Top and Equipment Co., under New Jersey laws, with \$50,000 capital; to manufacture motor cars and accessories. Corporators—F. Grundy, W. C. Rands, C. Copp.

Elmira, N. Y.—Heater Muffler Co., under New York laws, with \$50,000 capital; to manufacture appliances for automobiles, motors and engines. Corporators—W. Kinzie, L. D. Curran, A. G. Ingham.

Chicago, Ill.—South Shore Garage Co., under Illinois laws, with \$12,000 capital; to conduct taxicab and automobile business. Corporators—Charles M. Mudge, H. U. Mudge, L. C. Stewart, E. A. Fleming.

New York City, N. Y.—Russian Tire Co., under New York laws, with \$30,000 capital; to deal in automobile tires and rubber goods. Corporators—O. Braunwarth, H. Weiss, New York City; J. Klein, Hawthorne, N. J.

Dayton, O.—Acme Carburetter and Mfg. Co., under Ohio laws, with \$10,000 capital; to manufacture carburetters. Corporators—Charles S. Barkeler, W. H. Johnson, E. Leibel, McCallay, Lester Carson, Charles E. Margerum.

Meridian, Miss.—Meridian Auto School and Garage Co., under Mississippi laws, with \$10,000 capital; to maintain a garage and conduct an automobile school. Corporators—William M. Stone, Jr., J. M. McBreather, R. E. Stone.

Dayton, O.—Baker Taxicab Co., under Ohio laws, with \$10,000 capital; to deal in and operate automobiles and motor vehicles. Corporators—George L. Baker, Frank R. Baker, Harry W. Baker, John N. Van Deman, Charles D. Heald.

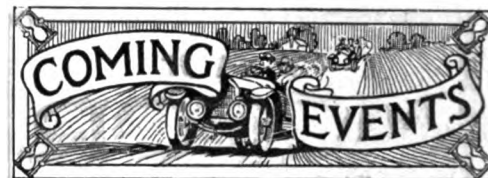
Nowata, Okla.—Nowata Motor Car Co., under Oklahoma laws, with \$2,500 capital; to deal in automobiles and operate a garage. Corporators—Walker K. Campbell, Independence, Kan.; George Gordon, Stanley J. Campbell, both of Nowata.

Owego, N. Y.—Motor Specialties Co., under New York laws, with \$175,000 capital; to manufacture motors, engines and motor vehicles. Corporators—A. Lovell, Plainfield, N. J.; H. H. Williams, New York City, N. Y.; H. V. Walsh, Brooklyn, N. Y.

Little Rock, Ark.—The Auto Supply Co. of Little Rock, under Arkansas laws, with \$10,000 capital; to deal in automobiles and motor supplies. Corporators—President, George McLean; vice-president, W. A. Lombard; secretary-treasurer, W. H. McLean.

Cleveland, Ohio—Broadway Garage and Livery Co., under Ohio laws, with \$10,000 capital; to deal in automobiles and maintain a garage and livery service. Corporators—Frank Popicki, Frank Puritowski, Henry Muszynske, Alexander Maryofsky, B. K. Zbornik.

Cleveland, Ohio—The Automobile Owners' National Association, under Ohio laws, with \$5,000 capital; to obtain statistics affecting manufacture and sales of automobiles. Corporators—Arthur Cobb, S. H. Blakeslee, J. A. Suster, M. Goodhue, G. S. Beckwith, all of Cleveland.



October 12-22, Berlin, Germany—International automobile show in Exhibition Hall, Zoological Garden.

October 14-25, New York City to Jacksonville, Fla.—American Automobile Association's eighth annual national reliability tour for the Glidden trophy.

October 21, Minneapolis, Minn.—Columbia Heights Hill Climb under auspices of the Minneapolis Motor Club.

October 27-November 3, Chicago, Ill.—1,000 mile reliability contest under auspices Chicago Motor Club.

October 28, Newark, N. J.—Newark Motor Club's reliability contest.

November 1, Waco, Texas—Racemeet under auspices Waco Automobile Club.

November 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

November 3-4, Columbia, S. C.—Automobile Club of Columbia's track racemeet.

Nov. 3-11, London, England—Society of Motor Manufacturers' and Traders' annual show in Olympia Hall.

November 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

November 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

November 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

November 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

November 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

November 30, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

January 6-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual show in Grand Central Palace.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association annual show at Wayne Garden.

January 27-February 10, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in Coliseum and First Regiment Armory.

Glidden Tour Becomes a Fearful Mud Wallow

Less than Half-way to Jacksonville, Heavy Rains, Southern Mud and Swollen Streams Play Havoc — Brave Start, Resembling a Road Race, Followed by General Upset of Schedule and Scores—Maxwell Team Alone Retains Unblemished Record.

Winston-Salem, N. C., October 18—The Glidden tour became almost a rout today. Of the 64 contestants who started so bravely from New York but 25 are here tonight. Following the terrific rain storm cars were strung out all along the route

New York City on Saturday last, 14th inst., and more than that it is the second largest event of its kind that ever was held in America. The cars of 64 competitors, alternately headed and flanked and followed by 10 others containing officials, timers, judges and newspaper men—a total

largest reliability tour was started exactly 10 years later than its larger prototype, which was the original touring contest to be held in this country. The first one was started on September 9th, 1901, under the auspices of the Automobile Club of America, and those who have good memories will have little difficulty in recalling how some 80 cars were sent away from New York City on what then was considered to be an enormous undertaking—a six days' journey of approximately 465 miles to Buffalo, N. Y.

That the run was no "joy ride" (they scarcely knew what such journeys meant at that time) and was in truth a terrible test, for the halting cars of a decade ago is history; but 41 of them reached Rochester, 394 miles away, where the tour was terminated on September 14th, 1901, owing to the assassination of President McKinley.

But the present Glidden tour is no "joy ride" either, despite assurances and hopes bred of reports of the excellent roads which would be encountered, that it would be one. On Tuesday night, 17th inst., with 438 miles of the journey covered, the tourists being in Roanoke, Va., but two teams of the 18 that started were able to exhibit perfect scores, while of the 10 unteamed



MAXWELL TEAM AT HEAD OF THE LINE IN NEW YORK

and few of them were able to make the night control on time. At first it was decided not to make a start until the roads had dried out a little, and the pilot car was sent out to make an investigation in the meantime. Eventually a start was decided on, but schedules were thrown to the wind and the cars were started almost when the drivers pleased for a terrible mud plug from Roanoke to Rock Mount, 30 miles away. Few of the cars were able to travel on other than low gear and the swollen fords and slippery hills were twin terrors to all. Of the 25 who got here tonight, many of them arrived long after dark; the others are not expected till tomorrow. A wilder night ride scarcely can be imagined. Regarding scores scarcely anything is known beyond the fact that the Maxwell trio got in on time and retains its perfect score.

The big "if" which at one time threatened the demise of the 1911 Glidden tour has lost its significance. The tour was started, as per much revised schedule, in



IN JERSEY CITY, WHERE THE REAL START WAS MADE

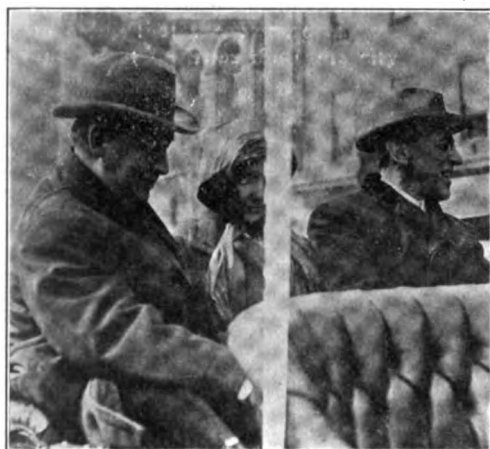
of 74 all told—were sent away on the first leg of their 1,460 miles journey to Jacksonville, Fla., where they are due on Wednesday night, October 25th.

By a curious coincidence this second

competitors who started only three retained unblemished records. The clean score artists are the Tarrytown team of three Maxwells and the Waltham (Mass.) team of three Metz cars; of those that are

not teamed the two Mitchells, Nos. 26 and 73, entered by the Ad Men's Club and Chamber of Commerce of Anderson, S. C., and the Winston-Salem Board of Trade, respectively, and the Haynes (No. 72), entered by John Keiley, of Atlanta, Ga., have perfect scores.

This is the third time that the Charles J. Glidden trophy has been competed for by teams of cars. Because it is three years since the trophy was competed for in this way it may have been forgotten. The first team competition was held in 1907, and that year and the following year teams composed of the cars of members of affiliated automobile clubs strove for the prize. This year the teams are composed of three cars each, the only condition imposed in the teaming being that the owners of each car in a team must be from the same city.



GOVERNORS SMITH AND WILSON

The tour is designated by the American Automobile Association, which organization is running it, as a Grade IV contest. Which is to say that penalties will be imposed for lateness at controls only, preliminary inspection, penalties for road work and the final technical examination being omitted. To the team making the best score will go the Glidden trophy. In case of a tie the winners will be decided by lot. Indicative of the interest which the tour has raised in the South, the city of Anderson, S. C., has donated a handsome trophy to be known as the Anderson trophy, and which will be awarded to the individual owner whose car makes the best score on the run, regardless of whether that car is in a team which is competing for the Glidden trophy or not.

As a matter of fact, the whole tour is permeated by the spirit of the South. The route lies South and nearly 80 per cent. of the entrants are from Georgia or South Carolina or Florida. Adding further to the unmistakable Southern atmosphere, Georgia's highest official, Governor Hoke Smith, and his daughter are participants, and competitors, too, in a 1912 Maxwell. Incidentally, this is the first time that such a high government official has become so

THE CONTENDERS WHO STARTED IN THE GLIDDEN TOUR

Tarrytown (N. Y.) Team								
No.	Car	Driver	Entrant	Carburettor	Magneto	Tires	Speedometer	
1	Maxwell	H. E. Walls	U. S. Motor Co.	Stromberg	Splitdorf	Ajax	Warner	
2	Maxwell	C. E. Gage	U. S. Motor Co.	Stromberg	Splitdorf	Ajax	Warner	
3	Maxwell	T. Costello	U. S. Motor Co.	Stromberg	Splitdorf	Ajax	Warner	
Atlanta Team No. 1								
63	Flanders	G. J. Adams	Decatur (Ga.) B. of T.	E-M-F	Splitdorf	Firestone	Stewart	
8	Flanders	H. Cohen	C. S. Winn	E-M-F	Splitdorf	Firestone	Stewart	
61	Flanders	J. Menzinger	E-M-F Atlanta Co.	E-M-F	Splitdorf	Firestone	Stewart	
Atlanta Team No. 2								
11	S.-Duryea	L. H. Young	C. H. Johnson	S.-D.	Bosch	Diamond	Warner	
39	S.-Duryea	D. K. Brinson	C. Wheatley	S.-D.	Bosch	Goodrich	Warner	
66	S.-Duryea	E. J. Murphy	B. Morgan	S.-D.	Bosch	Fisk	Warner	
Atlanta Team No. 3								
43	Ford	M. W. Venable	C. Port. Cem. Co.	Kingston	Ford	Fisk	Stewart	
44	Ford	J. M. Orr	E. N. Willingham	Kingston	Ford	Firestone	Stewart	
45	Ford	J. O. Teasley	J. O. Teasley	Holley.	Ford	Firestone	None	
Atlanta Team No. 4								
10	P.-Arrow	G. Dorneck	E. P. Ansley	P.-Arrow	Bosch	Goodyear	Warner	
12	Marmon	B. M. Grant	B. M. Grant	Schebler	Bosch	Fisk	Stewart	
64	P.-Arrow	C. F. Wolfe	E. Rivers	P.-Arrow	Bosch	Diamond	Warner	
Atlanta Team No. 5								
4	Maxwell	Arthur Lee	Gov. Hoke Smith	Stromberg	Splitdorf	Ajax	Warner	
49	Columbia	Paul Keller	Athens M. C. Co.	Columbia	Bosch	Diamond	Warner	
50	Maxwell	W. F. Cook	Bishop & Varner	Stromberg	Splitdorf	Ajax	Warner	
Atlanta Team No. 6								
18	Garford	D. H. Williams	St. E. Massengale	Garford	Bosch	Goodyear	Stewart	
19	Mitchell	L. C. Brown	L. C. Brown	Holley	Splitdorf	M. & W.	Stewart	
20	Schacht	E. F. Crawley	Griffeth Impl. Co.	Schebler	Mea	Goodyear	Stewart	
Atlanta Team No. 7								
14	White	W. D. Alexander	W. D. Alexander	White	Bosch	Diamond	Warner	
21	Mitchell	A. T. Bailey	Atlanta Ad. Men's Club	Schebler	U. & H.	M. & W.	Warner	
22	Thomas	J. Biscayard	J. E. Brown	Mayer	Bosch	Goodyear	Warner	
Atlanta Journal Team								
5	American	Inman Gray	Inman Gray	Stromberg	Bosch	Fisk	Warner	
7	White	Maj. J. S. Cohen	Maj. J. S. Cohen	White	Bosch	Goodyear	Stewart	
6	Thomas	H. B. Odell	Jas. R. Gray	Mayer	Bosch	Goodyear	Warner	
Nashville Team								
56	Marathon	P. Shelton	J. M. Downing	Schebler	Remy	Goodrich	Stewart	
57	Marathon	J. S. Dent	R. L. Dozier	Schebler	Remy	Goodrich	Stewart	
58	Marathon	W. Fanderson	V. L. Hutton	Schebler	Remy	Goodrich	Stewart	
Waltham (Mass.) Team								
15	Metz	C. H. Metz	Metz Co.	Holley	Bosch	Goodrich	Stewart	
16	Metz	L. Cathcart	Metz Co.	Holley	Bosch	Goodrich	None	
17	Metz	J. McGann	Metz Co.	Holley	Bosch	Goodrich	None	
Albany (Ga.) Team								
34	Halladay	E. B. Lee	P. de Berry	Schebler	Bosch	Fisk	Warner	
35	Halladay	M. F. Garrett	C. E. Freyer	Schebler	Bosch	Fisk	Warner	
36	Halladay	C. F. Owens	Streator M. C. Co.	Schebler	Bosch	Fisk	Warner	
Detroit Team								
53	Flanders	P. King	Studebaker Corp.	E-M-F	Splitdorf	Firestone	Warner	
54	Flanders	W. H. Soules	Studebaker Corp.	E-M-F	Splitdorf	Firestone	Warner	
55	Flanders	T. R. Bell	Studebaker Corp.	E-M-F	Splitdorf	Firestone	Warner	
Cordele (Ga.) Team								
60	Oldsmobile	I. B. Gordon	I. M. Powell	Nelson	Bosch	Goodrich	Stewart	
65	Oldsmobile	I. M. Powell	I. M. Powell	Nelson	Bosch	Firestone	Jones	
69	Oldsmobile	N. G. Latridge	I. M. Powell	Nelson	Bosch	Diamond	Jones	
Live Oak (Ga.) Team								
31	Cadillac	W. H. Lee	W. J. Hillman	Cadillac	Delco	M. & W.	Standard	
51	Cadillac	G. Newsome	J. R. Sandlin	Cadillac	Delco	M. & W.	Standard	
74	Cadillac	Dr. W. Stimson	Dr. William Stimson	Cadillac	Delco	Hartford	Standard	
Everglades Team								
33	Cole	H. B. Race	H. B. Race	Schebler	Bosch	Firestone	Warner	
46	White	J. Howard	J. Howard	White	Bosch	Diamond	Standard	
48	Cadillac	R. S. King	R. S. King	Cadillac	Delco	M. & W.	Standard	
Florida Team								
28	Cadillac	R. H. McMillan	R. H. McMillan	Cadillac	Delco	Hartford	Standard	
29	Cadillac	H. W. Rogers	R. S. Hall	Cadillac	Delco	Hartford	Standard	
37	Cadillac	R. D. Drysdale	R. D. Drysdale	Cadillac	Delco	Hartford	Standard	
Jacksonville Team								
32	Cadillac	C. Nolan	C. Nolan	Cadillac	Delco	M. & W.	Standard	
40	Cadillac	A. Walker	H. P. McNeil	Cadillac	Delco	Hartford	Standard	
47	Cadillac	E. L. Kellogg	L. C. Denmark	Cadillac	Delco	M. & W.	Standard	
Not Teamed								
26	Mitchell	A. T. Sullivan	Anderson Chamber of Commerce	Holley	Splitdorf	K.-Racine		
27	Chalmers	W. C. Bingham	J. H. Marsteller	Rayfield	Bosch	Goodrich		
41	Winton	A. Hardart	F. Hardart	Stromberg	Bosch	Goodrich	Jones	
42	E.-M-F	A. McCardle	C. M. McCardle	E.-M-F	Splitdorf	M. & W.	Warner	
52	Packard	H. S. Howland	J. H. Brennan	Packard	Bosch	Swinehart		
59	Cadillac	L. C. Reese	Martin & Reese	Cadillac	Bosch	Goodyear	Standard	
70	Krit	I. D. Waterman	Krit M. C. Co.	Stromberg	Bosch	Goodrich	Stewart	
71	Case	E. W. Walker	Greensboro Chamber of Commerce	Stromberg	Remy	Firestone		
72	Haynes	D. B. Tilden	J. Kealey	Stromberg	Eisemann	Goodyear		
73	Mitchell	G. G. Miller	Winston-Salem Board of Trade	Holley	Splitdorf	K.-Racine		

prominently connected with a purely sporting event. The route of the tour is over the proposed National highway from New York to Atlanta and Jacksonville, and though the mileage is only about half that covered in the 1910 tour 10 States will be traversed.

Long before the time for the start the cars were lined up on 41st street west of

generally and giving the last few touches to equipment. And what a pile of equipment some of the cars carried! They nearly all carried blocks and tackle; all had a few extra cans of oil; extra tools were scattered over tonneau floors without regard to order, and one man was thoughtful enough (or thoughtless enough, according to those who did not have them)

start away with a big bag of sand for ballast. Some of the cars were just a little bit crowded, however, and eventually an equitable division of passengers was made and all the cars were filled.

Though the tour did not start, officially, until Jersey City was reached, the real start was made promptly at 9 o'clock from in front of the A. A. A. headquarters on Fifth avenue, at 41st street, and from there down to the ferry, Metropolitan motorists, at least, had the time of their lives. Headed by a big red car bearing the insignia of the New York Fire Department, and in which rode Commissioner Johnson, the tourists made the trip downtown at a speed that was variously estimated at from 20 to 40 miles an hour, but which probably was not less than 30. There were no traffic stops, nor rules of the road, nor anything else except "get there and get there quick." Motorcycle "cops" held the rest of the traffic in check and got quite indignant if it interfered with the Glidden procession, and if a driver could not pass a trolley car or other vehicle in the right way, why he went the other way and no one said a word.

Of course, all the cars could not be put on one ferryboat, and so they went over in sections. There was no changing of licenses on the boat either, as is the usual



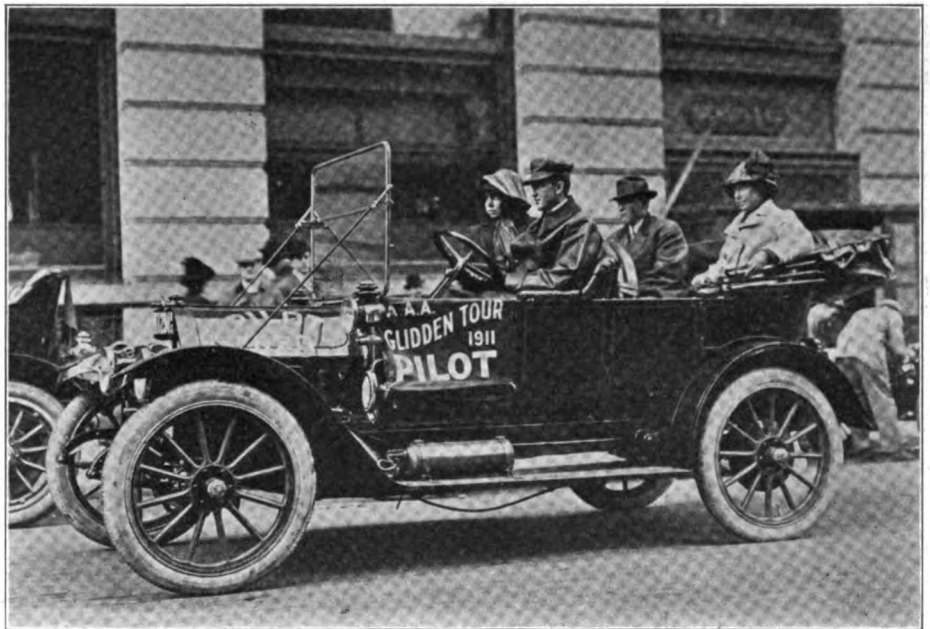
MISS BIRDIE MARKS (MAXWELL) THE ONLY WOMAN CONTESTANT

Fifth avenue. That is, some of them were; some of them were on Fifth avenue, and nine of them did not show up at all. The nine absentees were H. M. Atkinson (Packard), C. J. Hood (Columbia), W. E. Aycock (Knox), R. D. Drysdale (Cadillac), Henry Tift (Rambler), Roberts Motor Car Co. (Flanders), Asa G. Candier (Lozier), H. H. Raymond (Oldsmobile) and Lindsay Hopkins (Overland).

All of the teams were there, however, but the Maxwell trio was the only one that really looked like a team. The three cars were identical and the drivers and their "left hand men" were clad in spotless white. The cars are numbered 1, 2 and 3 and were first in line. Some one said they had been "on guard" all night to insure the position, but corroboration was not forthcoming.

Not all of the participants are of the sterner sex, either. More than a score of them are ladies, and disdaining the services of mere man, several of them drive their own cars and handle them like veterans, too. Of these, Miss Birdie Marks, of Georgia, is perhaps the most conspicuous. It is said that Miss Marks came all the way from Europe in order to drive in the tour and she sticks right with the bunch all the time.

It is probable that the residents of that ordinarily quiet street have not seen such a scene of bustle and bother for many a year. Everybody was busily engaged strapping on trunks and fastening things



R. M. OWEN AT THE WHEEL OF THE REO PILOT CAR

to provide a shovel—of the variety that Italians use most when they dig holes in New York streets for subways and sundry other purposes.

Though it might be supposed that there would be little difficulty in obtaining passengers for the trip such was not the case. Several of the cars came very near not starting because the owners could not obtain the four passengers that the rules required to be carried, and one man had to

custom, because for the day the New Jersey "pay-as-you-enter" restriction had been removed, though everyone did not know it, and the wise ones proceeded to put the fear of the Jersey laws into the hearts of the timid. But it did not work; they were not as green as they looked, though one man—he rode in a green car, too—wrote out a fake Jersey number on a piece of cardboard and would have hung it on his car except that he "caught on" in time.

When the cars all were on Jersey soil they were parked out on two sides of the City Hall, while Governors Wilson, of New Jersey, and Hoke Smith, of Georgia, got together and shook hands and stood talking for such a long time that a young lady in one of the cars got impatient and wanted to know "if it always took that long to induce Jerseyites to take a ride in an automobile." Finally Governor Wilson joined Governor Smith in the latter's Maxwell—it is part of the plan of the tour to have the Governors of the States through which the procession passes join Governor Smith in his car and ride to the boundary line of their respective States—and after a few more speeches by Mayor Wittpenn, which not many heard, the checking out process was begun.

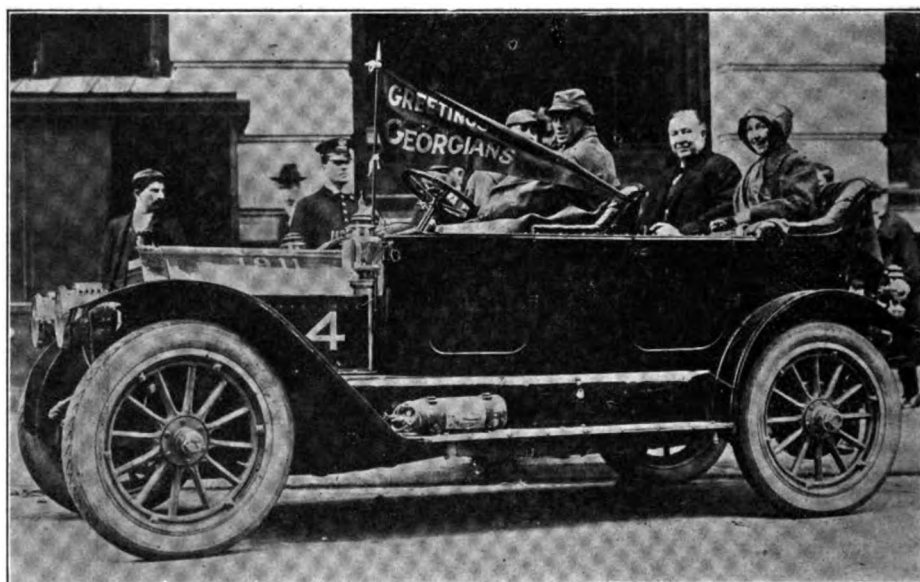
The cars were sent away at one minute intervals, and right away the tour became a race. Nobody wanted to tour alone, and to catch friends who had been sent on ahead almost any number of minutes up to 64, which was the number of cars that were checked out, required a pretty wide open throttle most of the time. It might be well to add that there were no such things as speed limits for the Gliddenites, or if there were nobody regarded them and nobody was "pinched."

"Say, what is this, a road race or a tour?" the Motor World man was asked, when a

to make adjustments if they become necessary.

The roads were excellent, but the dust was very thick and some of the tourists were anxious for the welfare of Governor Smith, for he was one of several who made the trip to Trenton—at something like 40 miles an hour—without goggles. Everywhere along the line of march the natives

ton for luncheon the start for Philadelphia was made. The roads were rougher than those encountered in New Jersey, or they seemed to be, and the dust was just as bad as ever. Also the pace that was struck was just as fast, and the only time the car in which the Motor World man rode was slowed down to 25 miles an hour was when an irascible bridge tender rushed out in



GOV. SMITH AND THE PENNANT THAT HE FLIES



THE "WELCOME" SIGN DISPLAYED AT THE VIRGINIA LINE

stalled railroad train just outside Jersey City necessitated an involuntary stop. But before he could answer one of the Gliddenites piped up: "Yes, it is—it's both and it's neither. It is likely to be a race to Philadelphia, but from there on it is supposed to be a sort of take-it-easy tour." But it was not. Anyone who has been on a reliability tour knows that nobody misses a chance to "loop it out" whenever they can in order to have plenty of time

turned out and waved flags and handkerchiefs and aprons, and in nearly every town a delegation met the procession and handed out flags bearing the name of the town. According to the number of flags that were distributed and tied on the cars by the time Trenton was reached some of the cars at least ought to be able to give a correct imitation of a college boy's room when they get to Jacksonville.

After an hour and a half stop in Tren-

front of it and, excitedly waving his arms, asked if the driver "didn't see that there sign," which cautioned against a greater speed than eight miles an hour. It was learned afterward that he had stopped every car in the tour and got just as much worked up over every one.

Governor Tener of Pennsylvania was supposed to meet Governor Smith at the end of the Morrisville Bridge but he did not meet the Georgia Executive until that night in Philadelphia. Arrived at Philadelphia the cars were checked out in front of the Walton, and afterward parked in the inclosure in the City Hall. Entertainment was not lacking. There was a smoker at the Walton for the men of the party, and the women's auxiliary of the Automobile Club of Philadelphia entertained the women.

There was also a dinner at the Union League Club, given by Howard Longstreth, chairman of the Touring Board of the A. A. A.; Powell Evans, president of the Automobile Club of Philadelphia, and Robert P. Hooper, president of the A. A. A., at which were present Governor Smith, Charles J. Glidden, State Senator Sproul and others.

The total mileage for the day was 95.1, and all of the cars made the trip without incurring penalization.

Gettysburg, Oct. 15.—The second day of the run had a materially different outcome from the first day. It rained hard all the morning and the run from Philadelphia to

Lancaster, 67 miles, the first half of the day's journey, was hard going for some of the cars. The afternoon stretch, from Lancaster to this place, wound up with penalizations for eight of the cars. Two of them were Halladays, competing in the Albany (Ga.) team. No. 34 Halladay was debited 63 points for lateness, caused by tire troubles, and No. 36 was charged 31 points

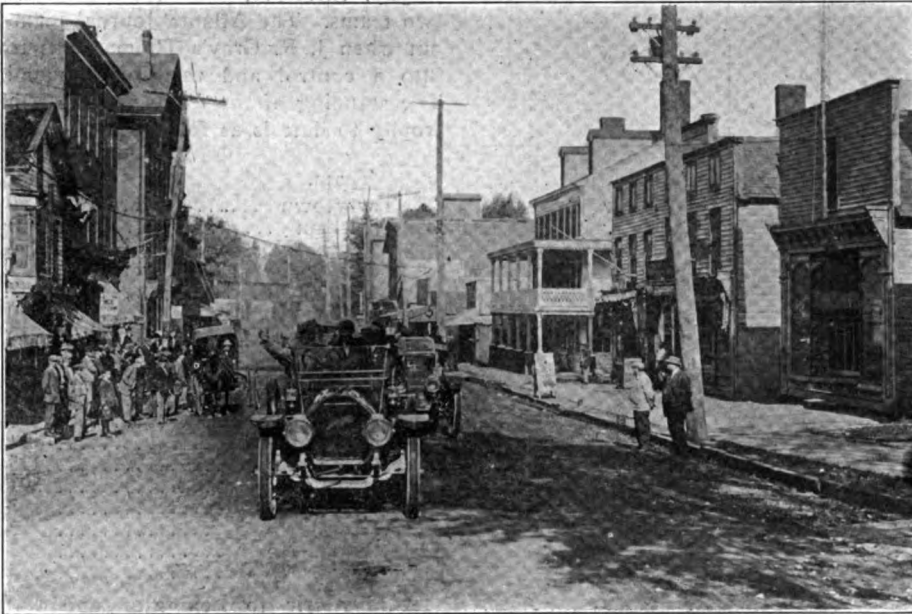
which have the most toll gates have the worst system of roads, but as regards a large part of the Lancaster Pike this is not so. The road is in fine condition. So, too, is the road from Lancaster to York, although, according to the custom, the roads in York are very inferior. Columbia, Pa., has some brick water breaks or cross road gutters that are terrors on springs. As a

the motorists had to climb high into the foothills and then drop down on the other side. An early start was made, in order to give the cars every chance to get through unscathed, and the running schedule was so liberal that it achieved just that purpose. A great many of the cars had their troubles ascending the grades, but none failed.

On the other side, where the cars cut into Charlestown and then ran the rest of the way to Winchester, it was easy going. All this time the weather was bad, a heavy mist being on the ground. The sun was trying hard to get through the clouds to cheer the damp drivers. This it did not succeed in doing until later in the afternoon.

It was just beyond Charlestown that the tourists who came after found a big Pierce-Arrow lying on its side. It had gone off the road on a curve and hit a telephone pole, and to its top was pinned a sign, which read: "No one hurt or even scratched," to satisfy the many who stopped. It was the starter's and press car, owned by O. A. Britson, of South Dakota, who drove it. R. E. Anderson, another South Dakotan, E. L. Ferguson, the A. A. A. official starter, and H. P. Burchell, of the New York Times, were in the car when it tipped over.

In the afternoon the tourists got an early start from Winchester, and hurried over



TOWNSPEOPLE GATHERED TO WITNESS THE "ROAD RACE" PASS

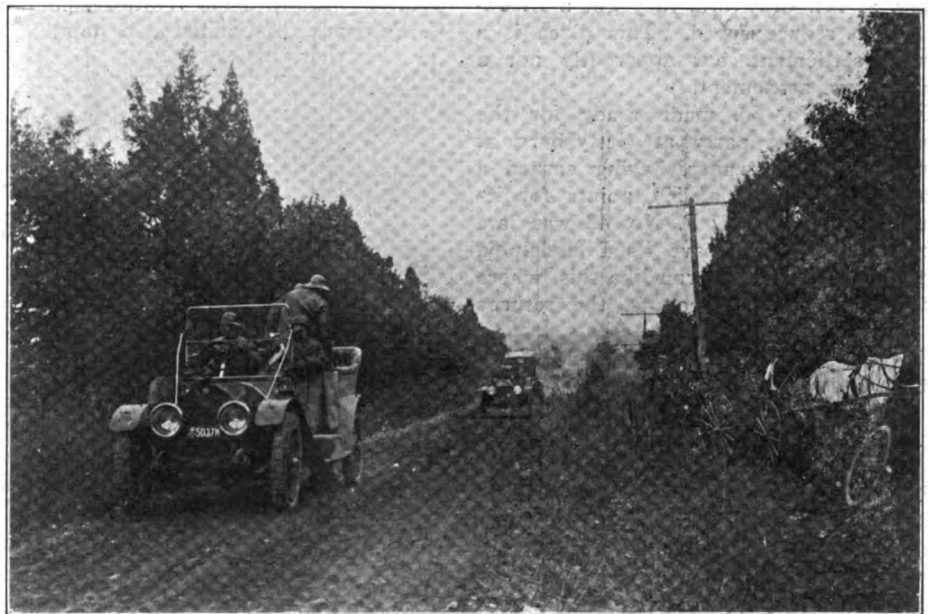
for time lost in straightening out a bent rim, caused by getting caught in a car track.

Misunderstanding of the rules was fatal to three of the Cadillacs, two of them, Nos. 28 and 29, being members of the Florida team. Cadillac No. 74, of the Live Oak team, was another to suffer through a misunderstanding regarding checking out. The penalties on Nos. 28 and 29 amounted to 19 points all told, and the other Cadillac received 3 points. J. M. Marsteller, in charge of Chalmers No. 27, didn't know that separate runs stood by themselves, and thought being late at noon didn't count if he was on time at night. He paid 13 points to learn the lesson. The Chalmers is not competing in any team.

This being a Sunday the roads were lined with folks to watch the tourists go by. The rather extraordinary idea that many of the competitors have that this is a road race cannot greatly help the cause of automobilism.

It is clear the folks in Gettysburg recognize that they have something to do, because they had up two signs, one of which read: "Better Roads in 1912," and the other, "Our People are Better than Our Roads." By an arrangement concluded by Governor Tener, all the tolls at the various gates were paid by the State for the tourists. This amounts to a large sum in a day's run, and the idea was highly pleasing to the motorists.

It is a curiosity of touring that the places



GIVING THEM THE WHOLE ROAD NEAR GETTYSBURG

particular feature must be mentioned the last 10 miles into this city, from Abbottstown to Gettysburg. This road abounds in bad spots and bounced the Gliddenites like mechanical jumping jacks.

Staunton, Va., Oct. 16.—The Glidden tourists had a very long run to-day, but one that after the first 15 or 20 miles was not punishing. Going out of Gettysburg at the beginning of their 180-mile journey

the Shenandoah Valley Pike, a wonderful road, in fine shape, through the valley between two ranges of the Blue Ridge Mountains, into this place. A fine, sunny afternoon, with beautiful country to look at, appealed to some of the automobilists, but most of them just "beat it," with eyes for nothing but the road and the car ahead.

Some of them were in such a great hurry that they fell foul of the law in Harrisonburg, about 20 miles from here, where

THE MOTOR WORLD

it was court day, and the town was crowded. Law officers warned all the motorists to come down to about 10 miles an hour, and finally had the woman toll gate keeper, whose house is a mile out of the town in this direction, drop the bar, with instructions to collect \$10 from every carload. Argument proved availing, however, and the tourists were let go after their license

five cars are ditched far from this place, and among them is the car of President Hooper of the A. A. A. It skidded off the road and turned over, but without hurting anyone. In no case was any accident the cause of injury to contestants. The day's penalties were as follows:

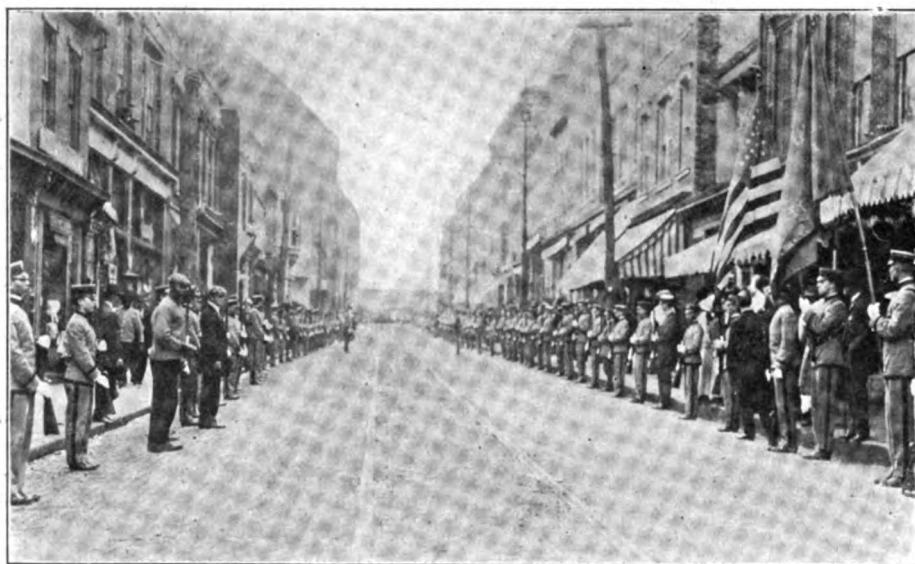
H. B. Race (33-Cole), 87 points; Frank M. Hardart (41-Winton), 21 points; Caro-

mobile), 1 point; James R. Gray (6-Thomas), disqualified.

The only teams having perfect scores are the Tarrytown Maxwells and the Waltham Metzes. The Atlanta teams, Nos. 5, 6 and 7, also have apparent perfect scores, but in each case one car is out on the road and its late arrival will mean heavy impost. The contest for the Glidden trophy, therefore, has narrowed down to two teams. The Atlanta Journal team lost out when J. R. Gray's Thomas was towed into a control and therefore disqualified. The standing of the teams for the Glidden trophy to date is as follows:

Team.	Penalization.
Tarrytown	0
Waltham	0
Atlanta, No. 4.....	4
Cordele, Ga.....	5
Atlanta, No. 1.....	7
Atlanta, No. 2.....	10
Live Oak, Ga.....	16
Florida	19
Jacksonville	23
Nashville	81
Everglades	91
Albany, Ga.....	94
Atlanta, No. 3.....	125
Detroit	591
Atlanta Journal	?
Atlanta, No. 5.....	?
Atlanta, No. 6.....	?
Atlanta, No. 7.....	7

A hilly trip to Lexington and Natural Bridge was the morning jaunt. At Lexington there was a parade of the Virginia Military Institute cadets. The afternoon began with rain that got heavier momen-



VIRGINIA'S WELCOMES—CADETS PARADE AND PRESENT ARMS

numbers had been taken down. Further along, at Mt. Crawford, they got a friendly tip to reduce speed. This place is a Shaker settlement, but apparently not a shake-down settlement.

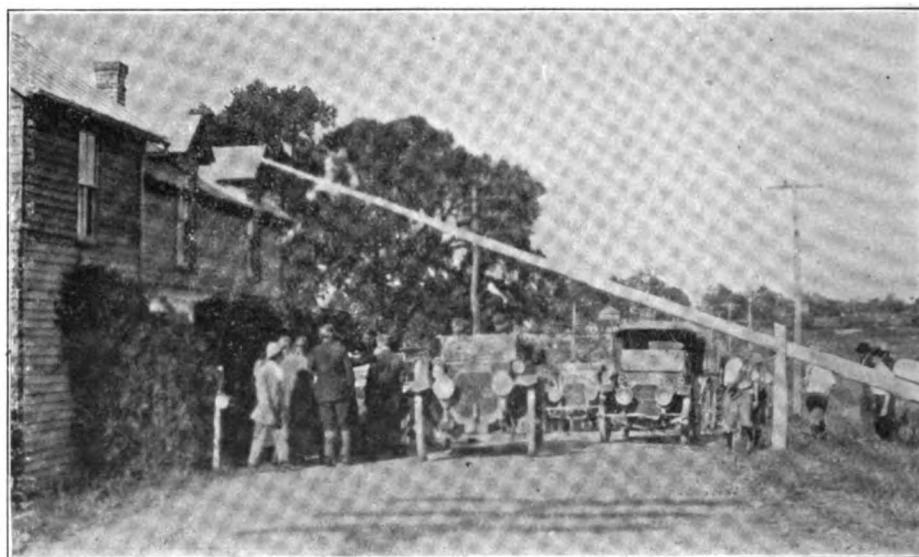
Flanders No. 53, made ready for the road, joined the party at Gettysburg at 3 o'clock this morning, having earned a terrific penalization of 591 points for its lateness. The E. M. F. No. 42 was late because it did not leave its Philadelphia control on time. In a run like this, where nothing but lateness counts, the returns are laconic in the extreme.

No penalizations were recorded at the end of to-day's run, except that E. M. F. No. 42 was still unreported late this evening.

Roanoke, Va., Oct. 17.—This day's operations caused much confusion. The run purposely was short, about 90 miles. A terrific rainstorm in the afternoon, however, made the already hard road from Natural Bridge to this place so much more dangerous that penalizations were many, and late to-night there are still a half dozen cars out, which will spoil several team scores. Because many of the contestants lost a lot of time on account of the way they were hampered on the narrow roads by the others, willfully or otherwise, Referee Walker decided to add 26 minutes leeway to each one's running time. The decision saved a lot of folks from penalty, but it did not please everyone.

It was a day of mishaps. No less than

lina Portland Cement Co. (43-Ford), 125 points; J. Howard (46-White), 4 points; L. C. Denmark (47-Cadillac), 23 points; J. R.



VIRGINIA'S WELCOMES—THREATENED WITH ARREST FOR SCORCHING

Sandlin (51-Cadillac), 13 points; James K. Brennan (52-Packard), 14 points; J. M. Downing (56-Marathon), 72 points; Dr. V. L. Hutton (58-Marathon), 9 points; Martin & Reese (59-Cadillac), 5 points; I. M. Powell (65-Oldsmobile), 4 points; E-M-F Atlanta Co. (61-Flanders), 7 points; E. Rivers (64-Pierce-Arrow), 3 points; Atlanta Chamber of Commerce (66-Stevens-Duryea), 10 points; I. M. Powell (68-Olds-

tarily. The fords began to rise and so deep was the water that the latest comers found the going perilous, as well as difficult. Two pieces of motor fire apparatus blocked the way for the motorists, getting mired in the mud in the worst possible places. The hills were too much for some of the cars and some of them failed at critical moments and delayed many others. It was almost a ghastly day.

LIGHTNING SPEED AT SANTA MONICA

Herrick Averages Nearly 75 Miles per Hour, Effacing Nazzaro's Record—The Others Who Scored.

To Harvey Herrick belongs the distinction of having driven an automobile—a National—in a road race at a higher average rate of speed than any other driver in the world. On Saturday last, 14th inst., he won the free-for-all division of the annual Santa Monica (Cal.) road races—202.8 miles—in 2:42:24.60, which is at the rate of 74.93 miles an hour and is a new world's record.

Until Herrick finished the race, the record stood at 74.3 miles an hour and was made by Felice Nazzaro in 1908 when he won the Florino cup race in Italy. But there is greater glory in Herrick's triumph for it was made on a comparatively short course—8.4 miles—whereas Nazzaro drove over one of the longest circuits ever used in a road race. Last year, the world's record came very near to being beaten in the same race when "Teddy" Tetzlaff averaged 71.31 miles an hour, and as a matter of fact the American road record did go, Bruce-Brown's record of 70.55 miles an hour, made in the Grand Prize race at Savannah a few weeks before being eclipsed by Tetzlaff, who held the record up to last week.

Herrick's National was not the only car of that brand to show first at a finish, for Charles Merz, whose name scarcely sounds familiar unless "National" is tacked on behind, also gathered in a first prize, his victory coming in the "heavy car" race at 151.506 miles. He, too, bettered Tetzlaff's old record, his time being 2:02:38.45.

But as much in the limelight as were the two National pilots, they did not bag all the glory. Great things had been predicted for the four Marmon cars and drivers that were entered and all four of them finished "in the money." Cyrus Patschke and Joe Dawson were second and third, respectively, in the free-for-all, while Bruce Keen, hitherto practically unknown, and Joe Nikrent, were first and second, respectively, in the 231-300 inch class race, which went 151.506 miles.

Dave Lewis, at the wheel of one of those new but consistent performers, a Stutz car, accounted for third place in the heavy car race, and Harrison Hanshue, who deserted his Apperson, temporarily at least, for a Mercer, was third in the 231-300 inch class. Joe Nikrent (Buick), A. J. Charles (Ford) and B. Seibel (E-M-F), finished in that order in the light car race (under 231 inches) at 101.004 miles.

Fair weather marked the day, though the crowd which turned out was not as large as lined the course last year. Accidents were conspicuous by their absence despite

the fact that there were 32 cars on the course at one time and the finish in each race was very close, especially in the heavy car class. The summary:

Free-for-all—202.08 miles.	
Harvey Herrick, National.....	2:42:24.60
Cyrus Patschke, Marmon.....	2:45:42.73
Joe Dawson, Marmon.....	2:47:54.55
301-450 inches—151.506 miles	
Charles Merz, National.....	2:02:38.45
Bert Dingley, Pope-Hartford....	2:02:26.35
Dave Lewis, Stutz.....	2:05:56.95
231-300 inches—151.506 miles.	
Bruce Keene, Marmon.....	2:12:09.95
Joe Nikrent, Marmon.....	2:13:03.05
Harrison Hanshue, Mercer.....	2:15:41.20
Under 231 inches—101.004 miles.	
Joe Nikrent, Buick.....	1:42:21.70
A. J. Charles, Ford.....	1:45:22.85
B. Seibel, E-M-F.....	1:55:50.29

Lee Oldfield Proves His Identity.

Lee Oldfield is Lee Oldfield after all—or to be more correct, Leonides Oldfield, the former appellation being his given name. After the disaster in which Oldfield was involved in Syracuse, N. Y., when his identity was called into question, American Automobile Association officials investigated his history and it was found that according to his birth certificate, which was produced, his name really is Oldfield, despite even the assertions of a man who claimed to have known him under another name on the Pacific Coast. Oldfield, it is said, purposes instituting a large number of suits for damages against the various public prints that cast doubts on his identity and against Berna (Barney) Oldfield, who declared that Lee had been introduced as his brother.

Why Wagner Will Take Nazzaro's Seat.

Felice Nazzaro, the noted Italian race driver, will not be seen in the Grand Prize race after all. After mature deliberation the officials of the parent Fiat company in Turin, Italy, have decided to use Louis Wagner, who also has an international reputation, and he will take Nazzaro's place at the wheel of one of the Fiat entries at Savannah on November 20th next. Following the example of Lancia, who quit racing to take up the manufacture of automobiles, Nazzaro has been working for some time on a car of his own design, which, if successful, will be marketed. Deeming it poor policy to employ a driver whose sole interest is not in the Fiat car Nazzaro was "given the gate."

Rain Stops Two Eastern Meets.

On account of rain and mud the races announced for the closing day of the Danbury fair at Danbury, Conn., 7th inst., were abandoned.

The dangerous condition of the course at White Plains, N. Y., on account of recent rains caused the program of races for the 13th inst. to be abandoned. They will be held on November 7.

MOROSS DENIES DISBROW CONTRACT

Burman's Manager Offers \$2,000 for Its Production but Declares It's Wholly Imaginary—Burman's Position.

Robert Burman and Ernest A. Moross, his manager, were in New York for several days preceding Tuesday last. On that day they took steamer to Germany, where at the Benz factory Burman is to be fitted to a 300 horsepower car, which, it is anticipated, will throw a shadow on all the existing records which stand to Burman's credit, and develop such speed as to make spectators gasp.

While they were in New York Moross particularly was more than anxious to meet Louis Disbrow, who unfortunately was in California. Disbrow is the racing man who told the Motor World and a number of others that he had signed a contract with Moross to compete at Moross's Labor Day meet at Brighton Beach, which bound him not to defeat Burman. Disbrow's statement had been discussed at the meeting of the Motor Racing Drivers' Association and had been related to so many others that it was almost common gossip around New York. When the Motor World representative saw him Disbrow repeated the assertion, and went into considerable detail to explain how, when he discovered that the Mercedes car that Moross had delegated to him to drive was capable of much more speed than it generally was credited with possessing, he determined to defeat Burman "contract or no contract," as he expressed it. He further stated that he so notified Burman, and that as a result, when he appeared on the track on Labor Day, Moross hopped aboard the Mercedes, switched off the ignition, and informed him that he was free to make himself scarce. The interview with Disbrow, in which he gave voice to those statements was made in the presence of a witness, and he repeated more than once that the contract was still in his possession, but when asked if he would permit it to be seen he refused to do so.

Before he sailed to Europe, Moross stated in substance that the reason for Disbrow's refusal is simple, i. e., he does not and never did possess such a contract. Considering the nature of the accusation against him Moross was extremely self-contained in talking of the matter. He declared with the utmost sincerity that neither by word nor deed had he even suggested a contract of the sort, much less executed one. He offered to place \$2,000 in the hands of the Motor World or any other responsible source, the money to be paid to Disbrow when he produced the alleged contract. He not only denied having been party to anything of the sort, but asserted that even Disbrow's statement

that he (Moross) had boarded the Mercedes when Disbrow appeared with it on the track at Brighton Beach and relieved him of its control was a tissue of falsehoods. He laughed at Disbrow's assertion that the Mercedes was capable of much greater speed than it had been permitted to develop and that it was competent to beat Burman's big Benz.

"If that were true," remarked Moross, "Is it reasonable to suppose that Burman, our star, would not be driving it? There never was a time when I asked any man to lay down for Burman or any one else! Naturally, I gave Bob the fastest car at my command—there is nothing wrong in that—and if any one can beat him he is free to do so and the opportunity is an open one. He has not dodged any man; instead, he has gone out of his way to enter open competition. He lined up against all comers on the Daytona (Fla.) Beach last April and met the best the country affords in the International Sweepstakes at Indianapolis on May 30th, and he will do so again in Savannah next month. The only thing I have ever said to any of the men with whom I have had anything to do has been occasionally to suggest that they 'make a race of it' solely with a view of preventing runaways and to give the spectators a real run for their money. Never have I sought to shield Burman or any one else from defeat, by contract or otherwise. I, myself, am 'on the level,' and every race with which I have had anything to do is in the same category. If any one can beat Burman he is welcome to his victory and will deserve it."

Moross expects to have a personal interview with Disbrow on his return from abroad and will give the latter a chance to produce the alleged contract and earn \$2,000 and possibly "something else."

Montana Organizing State Association.

Motorists of Western Montana met last week at Helena, Mont., to form the Montana State Automobile Association, with Lieutenant Governor W. R. Allen chairman and P. M. Barnard, secretary. Representatives were present from Lewis and Clark, Silverbow, Granite, Jefferson, Deerlodge, Powell, Missoula, Cascade, Broadwater, Beverhead, Madison, Flathead and Teton counties. A committee consisting of E. P. Mathewson, A. T. Morgan and W. R. Allen was appointed to draft by-laws and designate a meeting day in November at Butte, Mont., when delegates from all sections of the State can be present and elect permanent officers.

Oklahoma Racemeet Falls Through.

The Oklahoma State Automobile Association did not hold its racemeet in Oklahoma City on the 11th inst., as had been planned. Lack of entries caused it to fall through. The association, however, is making arrangements for a big spring meeting.

NO HOODOO AT PEORIA'S RACEMEET

Ominous Date Fails to Affect It—Two Days of Good Sport, With Honors Well Distributed.

Although Friday the 13th is supposed to carry a hoodoo it failed to affect the two days' racemeet fathered by the National Implement and Vehicle Fair Association at Peoria, Ill., which opened on that day. Ideal weather, a huge crowd, good sport and no accidents combined to put superstition to rout.

The races were contested on a mile flat dirt track with rather dangerous turns, which, however, did not serve to prevent H. J. Kilpatrick, at the wheel of a Hotchkiss; Lou Heineman, driving Ray Harroun's Marmon, and C. J. Raimey, piloting a Cino, from trying for local records. They shared honors, Kilpatrick being credited with establishing what is termed a State record for five miles at 4 minutes and 32 seconds, while Heineman set up a mark of 54½ seconds for a mile and Raimey negotiated ten miles in 9 minutes and 56½ seconds.

Harroun himself did not drive; in the events for which he entered the Marmon Heineman was the pilot. In other races Heineman drove a Case and was beaten by Gus Monckmeier (Staver-Chicago), and C. J. Raimey (Cino). The three miles match between private owners driving Buicks went to Wonderlich, and the slow race on a high gear was captured by Foutz (Inter-State). Gus Monckmeier (Staver-Chicago) won the Australian pursuit race from Joe Jagersberger (Staver-Chicago), and the three miles, free-for-all handicap was won by Heineman in Harroun's Marmon. The summary:

Friday, October 13th.

One mile time trials—Won by H. J. Kilpatrick (Hotchkiss), time, 0:55½; second, Lou Heineman (Marmon), time, 0:55½; third, J. Raimey (Cino), time, 0:56; fourth, Gus Monckmeier (Staver-Chicago), time, 1:00; fifth, Foutz (Inter-State), time, 1:01½.

Five miles, class C, 231-300 inches displacement—Won C. J. Raimey (Cino); second, Gus Monckmeier (Staver-Chicago); third, Lou Heineman (Case); fourth, Knudson (Staver-Chicago). Time, 4:59½.

Two miles, Australian pursuit—Won by Gus Monckmeier (Staver-Chicago); second, Joe Jagersberger (Staver-Chicago). Time, 5:08½.

Ten miles, class E, under 400 inches displacement—Won by C. J. Raimey (Cino); second, Mortimer Roberts (Abbott-Detroit); third, Gus Monckmeier (Staver-Chicago). Time, 9:56½.

Three miles, class E, free-for-all handi-

cap—Won by Lou Heineman (Marmon); second, Maxwell (Case). Time, 3:04.

Ten miles, class C, 301-450 inches displacement—Won J. Stickney (Velie); second, Foutz (Inter-State). Time, 10:03.

Saturday, October 14th.

One mile time trials—Won by Lou Heineman (Marmon), time, 0:54½; second, C. J. Raimey (Cino), time, 0:56½; third, H. J. Kilpatrick (Hotchkiss), time, 0:57½; fourth, Mortimer Roberts (Abbott-Detroit), time, 0:57½; fifth, Gus Monckmeier (Staver-Chicago), time, 0:59½; sixth, J. Stickney (Velie), time, 1:00½; seventh, Walker (Inter-State), time, 1:02½.

Three miles match, Wonderlich (Buick) vs. Ross (Buick)—Won by Wonderlich. Time, 3:41.

Five miles, class C, 231-300 inches displacement—Won by C. J. Raimey (Cino); second, Gus Monckmeier (Staver-Chicago) third, Lou Heineman (Case). Time, 5:14.

Three miles, handicap match, Lou Heineman (Marmon) vs. Maxwell (Case)—Won by Heineman. Time, 2:57½.

Five miles, class C, 301-450 inches displacement—Won by Walker (Inter-State); second, Foutz (Inter-State); third, J. Stickney (Velie). Time, 5:21½.

One mile slow on high gear—Won by Foutz (Inter-State); second, Bert Bartholomew (Glide); third, Gus Monckmeier (Staver-Chicago).

Ten miles, class E, under 450 inches displacement—Won by Gus Monckmeier (Staver-Chicago); second, Walker (Inter-State); third, J. Stickney (Velie); fourth, Lou Heineman (Case). Time, 10:05.

Five miles time trials—Won by H. J. Kilpatrick (Hotchkiss), time, 4:32; second, Lou Heineman (Marmon), time, 4:33.

Five miles, class E, free-for-all handicap—Won by C. J. Raimey (Cino); second, Lou Heineman (Case); third, Knudson (Staver-Chicago); fourth, H. J. Kilpatrick (Hotchkiss). Time, 4:40.

Blue and Yellow for Maine Motorists.

Maine has decided to use yellow and blue license plates for the year 1912. These will take the place of the red number plates which have been employed ever since the license law first went into effect. The letters will be blue enamel, raised on yellow background. The Secretary of State has asked for bids on 10,000 sets for automobiles, 999 sets for motorcycles and 300 sets for dealers. The automobiles will begin with No. 1; motorcycles No. A1 and dealers No. B1.

Dearholt Heads the Milwaukee Club.

At its annual meeting last week the Automobile Club of Milwaukee, Wis., elected the following officers for the ensuing year. President, Lee A. Dearholt; first vice-president, Arthur C. Brenckle; second vice-president, Frederick Gettleman; secretary, Leonard E. Mayer; treasurer, Charles S. Drake.

NO CLEAN SCORES IN DENVER'S RUN

Technical Examination Decides Awards for Five Days Contest—Flanders Entry Secures the Newspaper's Purse.

After five days' travel, from the 9th to the 13th inst., during which 880 miles of good, bad and indifferent roads in the heart of the Rocky Mountains were covered, five of the 12 contestants in the Denver (Col) Times's reliability tour returned with perfect road scores. They were E. Linn Mathewson (Reo), A. T. Wilson (Mitchell), Bert Hall (Cadillac), William Thorney (Ford) and E. Fernald (Maxwell). Then it was that the technical committee started a rigid examination, which lasted two days.

As has often been the case, a perfect road score does not necessarily carry the prize with it, for although the Studebaker-Colorado company's Flanders, which was piloted by Terry Ward, was penalized 17 points for road work and being late at controls, it passed the technical examination with flying colors and without further debit, and thus secured the Times purse of \$750. On the other hand, all of the five cars which checked in on the last day with perfect road scores were penalized for loose bolts, nuts and other things. William Thorney, Ford, lost 19 points in the examination and finished second, while the third prize went to Bert Hall, Cadillac, whose penalties amounted to exactly 23 points.

Though the tour required five days for completion it was made in two jumps, so to speak, the contenders taking three days to make a roundabout journey west and south and back to Denver, when a fresh start was made, and for two days the trail led northward and then southward over an out-and-home course. It was in no sense a sociability run, even though the tourists were well entertained at the various controls, for the roads traversed, while not generally bad, included many miles that were sandy and others that were decidedly rocky. There were hills aplenty, too, and as the scene of the whole tour was laid in a section of country noted for the height of its mountains, few of the elevations encountered would be considered mere pimples.

Salida was the destination the first day, which was the longest day's travel of the tour, it being 205 miles from Denver. The cars left the Denver Times building at 5 o'clock in the morning at one minute intervals, in the following order: William Thorney, Ford; Bert Hall, Cadillac; M. B. Fletcher Everitt; E. Linn Mathewson, Reo; W. H. Thayer, Elmore; Better-Than-Air-Tire Filler Co., Buick; A. T. Wilson, Mitchell; O. S. Wilson, Flanders; Studebaker-Colorado Vehicle Co., Flanders; J.

E. Barker, Regal; Ford Motor Co., Ford; E. Fernald, Maxwell. Hartzell was the noon control, and the morning run was made in good order, a stop of a few minutes being granted at Colorado Springs in order that the hill leading to Hartzell could be taken with comfort. From there to Salida was a continuous grind up and down grades and when the night control was reached three of the drivers had rolled up penalties as follows: W. H. Thayer (Elmore), 1 point; J. E. Barker (Regal), 3 points, and Studebaker-Colorado Vehicle Co. (Flanders), 17 points.

Pueblo was the destination the second day, and the course passed through Canon City along the famous Rainbow route, where the road winds under the shadow of beetling cliffs and below them the Arkansas river. Lunch was taken at Canon City and from that point on to Pueblo many of the contestants took the wrong trail, with the result that several perfect scores were blemished. The second day's penalties were: M. D. Fletcher (Everitt), 1 point; W. H. Thayer (Elmore), 67 points; Better-Than-Air-Tire Filler Co. (Buick), 269 points; O. S. Wilson (Flanders), 10 points.

From Pueblo to Denver along the State highway very little difficulty was encountered, and most of the contestants reached the Colorado capital without incident or accident. The Buick entered by the Better-Than-Air-Tire Filler Co. continued to behave badly and when Denver was reached it was withdrawn, the penalties by that time having reached 285 points.

Cheyenne, Wyo., by the way of Boulder, Colo., was the destination on the fourth day, a route which followed the recently constructed State road, which was built by prison labor. The pike has been raised 50 or more feet above the old roadbed and the contestants raced to Marrison, the noon control, in good order. A short stop was made at Boulder and all of the eleven cars reached Cheyenne with perfect scores for the day.

The return by the way of Greeley was over what proved one of the worst roads of the entire trip. Most of the distance was sandy and considerable trouble was encountered. Six of the contestants, however, who had retained perfect scores did not suffer, but W. H. Thayer (Elmore) lost 76 points; J. E. Barker (Regal), 12 points, and Ford Motor Co. (Ford), 16 points.

The final score follows:

Owner and Car	Penalties
Studebaker-Col. V. Co., Flanders..	17
William Thorney, Ford.....	19
Bert Hall, Cadillac.....	23
Ford Motor Co., Ford.....	26
J. E. Barker, Regal.....	30
M. B. Fletcher, Everitt.....	31
O. S. Wilson, Flanders.....	35
A. T. Wilson, Mitchell.....	40
E. Linn Mathewson, Reo.....	42
E. Fernald, Maxwell.....	45
W. H. Thayer, Elmore.....	144
Better-Than-Air-Tire F. Co., Buick Out	

SPOKANE MIXES SPEED AND STUNTS

Alderson and Neher Fastest in Bore-Restricted Races—Wright and Merrill Slowest on High Gear.

H. C. Alderson, at the wheel of a Chalmers, not only lowered the track record for a mile to 1:15 at the Interstate Fair, Spokane, Wash., on Saturday, 7th inst., but succeeded in capturing the five miles for cars of 4½ cylinder bore and under, and also the five miles free-for-all, and thereby occupied most of the limelight. Floyd Neher, driving a Regal, captured the race for small cars at five miles in 7:05, and the slow race for four cylinder cars on high at 220 yards was won by H. E. Wright, Cadillac, in 2:32½. In a similar event for six-cylinder cars on high speed George W. Merrill in a Thomas made the distance in 1:54½ and annexed the honors. The summary:

Five miles, under 3¾ inches cylinder bore—Won by Floyd Neher, Regal; second, Harold Hahn, Ford; third, Vern Pence, Ford. Time, 7:05.

Two hundred and twenty yards slow race for four cylinder cars on high gear—Won by H. E. Wright, Cadillac; second, C. S. Brown, Overland; third, Ned Week, Chalmers. Time, 2:32½.

Five miles, under 4½ inches cylinder bore—Won by H. C. Alderson, Chalmers; second, William Falk, Abbott-Detroit; third, V. Volverton, Everitt. Time, 6:23¾.

Five miles, free-for-all—Won by H. Alderson, Chalmers; second, William Falk, Abbott-Detroit; third, Floyd Neher. Time, 6:23.

Two hundred and twenty yards slow race for six cylinder cars on high gear—Won by George W. Merrill, Thomas; second, R. Paulsen, Winton; third, Hugh Churchill, Winton. Time, 1:54..

One mile time trial—Won by H. C. Alderson, Chalmers. Time, 1:15.

Iowans Organize Cross State Club.

Motorists of Oskaloosa (Iowa) have formed the Cross State Automobile Club to protect a new route which has been laid out between Davenport and Council Bluffs, which reduces the distance between the extreme eastern and western end of the State 68 miles. The officers are: President, Charles E. Walling; secretary, W. R. Lacy. Vice-presidents will be selected in each of the following counties through which the route passes: Muscatine, Washington, Keokuk, Mahaska, Marion, Warren, Madison, Adair, Class and Pottawatomie.

Because of the presence of the racing stars due to the Santa Monica road race, the Los Angeles Motor Club has arranged a two-days' racemeet for the 20th and 21st inst. It will be held at the motordrome.

TRUCK RESULTS MUST BE REVISED

Wrong Method of Calculation Employed for San Francisco Contest Affects Ten Scores—Eleven "Perfects" Stand.

Although the "final" awards in the two days reliability and economy contest for motor trucks, which was held under the auspices of the San Francisco Examiner, October 4 and 5, were made last week, it seems that they were not quite so "final" as they appeared to be and that the standing of the trucks is likely to undergo a considerable change owing to the peculiar way in which the total cost per ton-mile had been figured by the experts of the technical committee. How these figures were obtained by the committee at first appeared somewhat mystifying, as the method of calculating was one which hitherto had not been used in such contests, but a close study of the figures revealed that it was not the arithmetic which was at fault, but the formula used in fixing the monetary equivalent of the penalizations.

According to precedent in similar trials, the total cost per ton-mile plus penalties should have been calculated in the following manner: Divide total cost of operation by number of ton-miles; divide total penalizations by 10, the latter quotient being the monetary equivalent of penalizations in cents; add the two quotients. The San Francisco committee, however, before resorting to addition divided the second quotient by the number of miles covered, and as a result obtained figures which considerably altered the records and standing of the ten trucks which suffered penalties, although the 11 which obtained perfect scores are, of course, in no wise affected. These differences are as follows:

Truck	Official Figures	Correct Figures
7—Brush	\$0.1815	\$0.2617
24—Reo	.0973	.1827
20—Grabowsky	.1189	.1388
6—Franklin	.1194	.28983
3—Federal	.0803	.6262
21—Kelly	.0390	.0449
9—White	.0396	.0714
11—Reliance	.0405	.5585
18—Pope-Hartford	.0577	.1470
10—Lewis	.0306	.0802

The Reo, No. 24, which, on the face of the returns won first prize in division 3K, should have been last in that division, with \$0.1827, while in the division 8K, the No. 28 Packard, should have been first, and the No. 13 Gramm second, instead of being third and fifth, respectively. That someone on the coast has discovered the flaw in the calculations, is evidenced by a belated announcement that the original figures will be revised. Nothing, however, can take first honors from the White trucks, Nos. 19 and 23, which tied with the lowest cost, 2½ cents per ton-mile.

CONTENDERS IN THE SAN FRANCISCO-SAN JOSE TRUCK CONTEST: THEIR PERFORMANCES AND ORIGINALLY DECLARED SCORES

Division 1K, Under 500 Pounds Capacity

COST OF OPERATION																
No.	Name of Truck.	Entered by	Running Schedule— Miles per Hour	Type of Ignition	Makes of Tires	Gals.	Cost Gasoline at 14½¢ per Gal.	Cost Pints at 40¢ per Gal.	Drivers' Wages 12% per An- num, 300 Days	Total Cost	Per Mile	Price of Truck	Load Carried, Pounds	Total of Road- and Final Tech- nical Penalties	Cost per Ton Mile	Total Cost per Ton Mile Incl. Pen's at 1/10c
7—	Brush	A. D. McLellan	14	Battery	Diamond	5¾	\$0.83½	¾	\$0.75	\$6.02	\$0.452	\$450	500	89	\$1.808	\$1.815
26—	Indian	C. C. Hopkins	14	Bosch	Goodrich	3¾	.49	1	.20	5.55	.0417	450	250	...	.3336	.3336
Division 3K, 1,001-1,500 Pounds Capacity																
24—	Reo	Norman De Vaux	12	Battery	Diamond	12	1.74	11	2.20	9.64	.0725	875	1500	86	.0967	.0973
1—	White	White Co.	12	Bosch	Diamond	10¾	1.81	5½	1.10	9.83	.0740	2400	1500	...	.0987	.0987
8—	Buick	Howard Auto Co.	12	Remy	Goodyear	12¾	1.85	9	1.80	9.85	.0741	1150	1500	...	.0988	.0988
Division 4K, 1,501-2,000 Pounds Capacity																
20—	Grabowsky	William Wertsch Co.	12	Mea	Firestone	16	2.32	11	2.20	15.80	.1188	5350	2000	20	.1188	.1189
6—	Franklin	Franklin Auto Co.	12	Bosch	Goodrich	16	2.32	3½	.66½	13.09	.0983	2620	2000	2800	.0983	.1194
Division 5K, 2,001-3,000 Pounds Capacity																
4—	White	White Co.	10	Bosch	Diamond	11	1.59½	9	1.80	11.07	.0832	3350	3000	...	.0554	.0554
22—	Autocar	Walter Morris	10	Bosch	Hartford	13	1.88½	6½	1.30	11.11	.0855	2400	3000	...	.0557	.0557
3—	Federal	Standard Motor Car Co.	10	Bosch	Hartford	18¾	2.74	3	1.60	10.14	.0762	2250	2000	550	.0762	.0803
Division 8K, 5,001-7,000 Pounds Capacity																
21—	Kelley	Standard Motor Car Co.	6	Bosch	Kelly Springfield	29	4.20½	10	2.00	15.51	.1166	3500	6000	6	.0389	.0390
9—	White	White Co.	6	Bosch	Diamond	22	3.19	11½	2.30	15.73	.1183	4050	6000	32	.0394	.0396
28—	Packard	Perryman & Phillips	6	Eisemann	Diamond	21¾	3.15	14	2.80	17.03	.1280	3850	6000	...	.0427	.0427
11—	Reliance	H. W. Ball	6	Splitdorf	Goodyear	28½	4.13¼	14	2.80	17.01	.1279	3850	7000	522	.0365	.0405
13—	Gramm	Paul Kleiber	6	Bosch	Swinehart	28	4.06	16	3.20	17.37	.1306	3890	6000	...	.0435	.0435
18—	Pope-Hartford	Con. Motor Car Co.	6	Bosch	Firestone	38½	5.58¼	11½	2.30	22.76	.1709	3600	6000	90	.0570	.0577
Division 9K, 7,001-10,000 Pounds Capacity																
19—	White	White Co.	6	Bosch	Diamond	16¾	2.43	10	2.00	15.03	.1154	4500	10,000	...	.0231	.0231
23—	White	White Co.	6	Bosch	Diamond	23¾	3.40¾	5	1.00	15.01	.1153	4500	10,000	...	.0231	.0231
17—	Pierce-Arrow	Pierce-Arrow Sales Co.	6	Bosch	Goodrich	24½	3.55¼	4	.80	16.15	.1213	4750	10,000	...	.0243	.0243
14—	Speedwell	L. V. Lynch	6	Eisemann	Swinehart	18	2.61	7	1.40	13.92	.1071	3650	8000	...	.0268	.0268
10—	Lewis	Lewis Motor Truck Co.	6	Bosch	Diamond	30¾	4.47	6	1.20	15.75	.1208	3850	8000	50	.0302	.0306

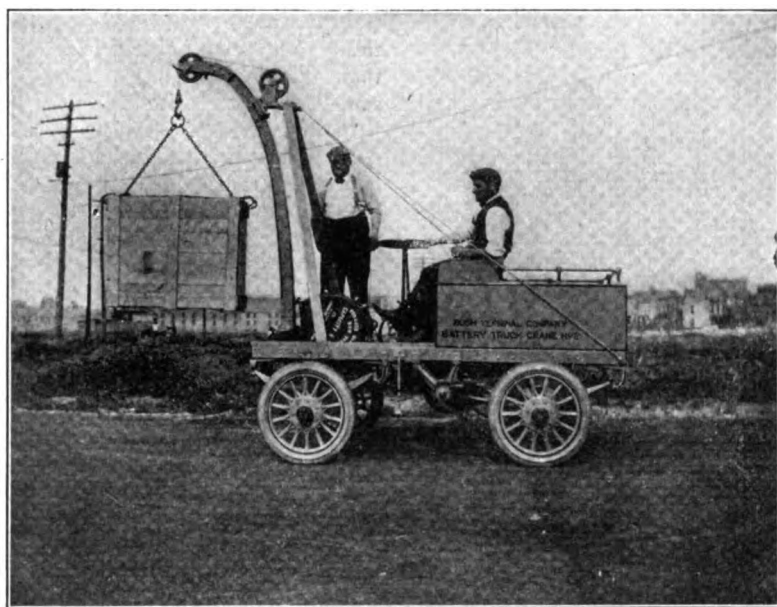
Electric Truck Develops a New Field of Utility

Demonstrating in a novel way the extreme flexibility of the modern motor truck in its application to industrial uses, the General Electric Co., the precise relation-

the returns are sure and liberal. To meet as many of the demands of this traffic as possible and to accomplish the desired ends with economy and rapidity the General

crane and vehicle, all of stable design and conveniently arranged. The vehicle is a one-ton storage battery truck made very short and having the battery mounted on the top of the frame at the rear end. This places the greatest weight over the traction wheels and makes a splendid counterweight for the crane. The wheels are made smaller than normal, and a greater speed reduction to the drive wheels is employed to insure a high draw-bar pull when used as a 'tractor.' The springs under the front end are of double strength to bear the over hung weights liable to be handled by the crane. The battery, motor and controller are of the standard type and as a vehicle the handling presents no new features except the small radius in which the machine can be turned.

"A crane arranged to swing 180 degrees is mounted on the extreme front of the vehicle and is supported near the upper end by a pivoted 'A' frame and guy rods and at the bottom by a large ball and socket joint which allows some desirable flexibility without binding. The crane is equipped with special attachments to suit the character of the work contemplated. These consist of rope and chain slings, barrel tongs, bale grapples, box hooks, snatch blocks and small tools. For very special work other equipments are designed and built to meet the requirements.



THE BATTERY TRUCK CRANE "HAULING ON THE HOOK"

ship of which to the automobile industry is far more intimate than ordinarily supposed, has produced a new vehicle type which is termed the battery truck crane. This is, in fine, nothing more nor less than a self-propelled derrick, comparable in purpose and utility with the similar units frequently employed in railway work. A sample vehicle of this class is on view at the electrical show in New York City, which will close next Saturday evening, while the general purpose of the machine, its application and the self-sustaining economy that results from its use formed the basis of a paper by R. H. Rogers, which was read before the Electric Vehicle Association of America, at its annual meeting last week.

"Marvelous reductions have been made during the past few years in the cost of handling free flowing bulk freight by means of electrically operated machinery. On the other hand, the method of handling package freight, as such, and of the infinite variety of materials in our factories that are being changed from one kind of freight to another, is still in most cases a prolific source of high labor cost," Rogers observed.

"This line of work presents almost as many phases as it does kinds of material to be handled, its problems are intricate and its needs are varied and urgent; but

Electric Co. has devised the battery truck crane. This machine is designed to lift, carry and pull and in one, two or all three



TRUCK CRANE USED AS A TRACTOR HAULING COTTON

of these functions is found the most economical solution of almost every problem in the handling of package material. The battery truck crane . . . is a neat and mechanical looking combination of hoist,

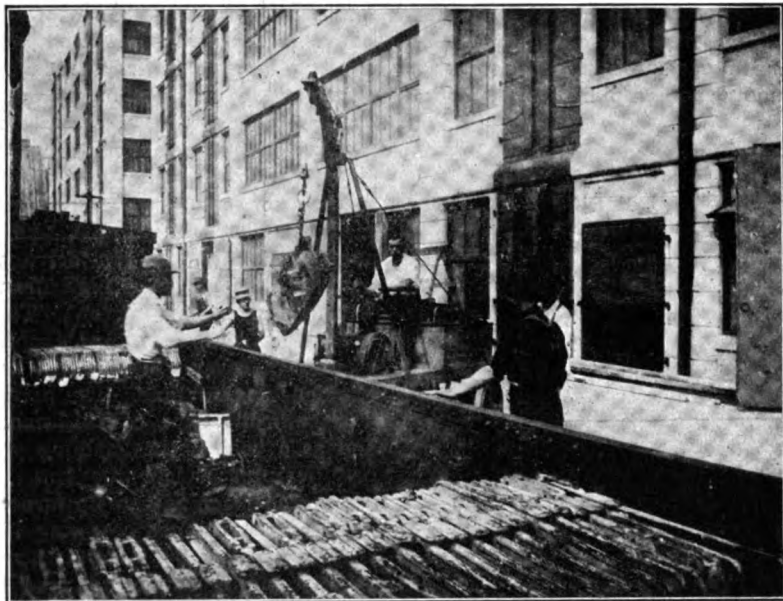
The height of the crane can be made to suit local conditions, as several booms of different lengths can be used.

"The electric hoist is a compact weather-proof motor, controller, gears and drum in

one unit, capable of lifting one ton twenty feet per minute, handles thirty feet of cable and takes its current from the vehicle battery. This hoist is securely bolted to the vehicle frame at the foot of the crane with its cable passing up through the hollow top pivot over the sheaves and ending

unloaded with material from or to convenient piles or to other means of transportation.

"In this way 360 castings aggregating 65,000 pounds have been removed from a gondola car in five hours. This gives an average of 1.2 lifts per minute, the limit



UNLOADING A GONDOLA CAR WITH THE TRUCK CRANE

in a swiveled hook. When loads of a half ton or less are handled the pulley is removed and the swiveled hook is used direct. With loads of over one-half ton the pulley is put on and the cable end is hooked to a shackle leaving the pulley hook to carry the heavy loads. The hoist controller handle is connected to a lever convenient for the operator, who pulls to raise, pushes to lower, and lets go to stop at any point, for the lever goes to the central (off) position if released. The hoist contains, besides the automatic holding brake, a load brake which prevents excessive speeds when lowering. Lubrication is obtained from compression grease cups wherever needed. All of these practically standard and well-known components are welded into a well-balanced and convenient machine, easy to operate and maintain. . . .

"The practical time, money and space-saving applications of the battery truck crane may be divided into three classes, viz: hoisting, hoisting and carrying on the hook, towing trailers. . . .

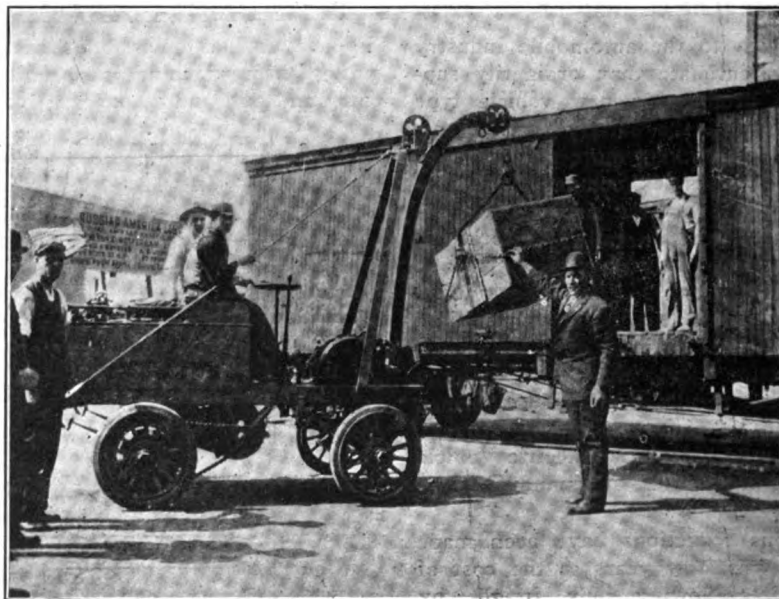
"Where material which may be subdivided into parcels of one ton or under has to be moved through a vertical distance of ten feet or less and deposited within a six or eight foot radius, the machine is brought to an advantageous position, the brakes set, and the hoist put into operation. The boom swings back and forth between the picking up and depositing points with each load. By this means box cars, gondola cars, wagons, power trucks, trailers and lighters are loaded or

being the speed with which slings could be attached to the castings by two men. A box car was loaded with 64 800-pound bar-

rel of plumbago in 25 minutes and four cars were loaded in two and one-half hours, which included spotting the cars. This work averaged two barrels per minute, hoisted nearly five feet and swung well inside the cars. In each of the above cases, not only was the usual time greatly reduced, but fewer men were required. . . .

"This class of service is more often used than either of the others, and ranges from the transfer of a thousand packages between a lighter and a nearby warehouse to the hasty trip to the stockroom for a barrel of oil. Its flexibility, simplicity and speed make it well adapted for heavy errand work about factory buildings even when they are fully equipped with cranes and industrial railway. Derailed cars and spilled loads on the narrow-gauge railway are quickly replaced, and the line cleared by the battery truck crane.

"By this pick-up-and-run method sixty 800-pound barrels of plumbago were moved 300 feet in one hour, one helper only being used. One hundred and fifty 300-pound boxes of rubber were loaded into a box car from seventy-five feet away in fifty



BATTERY TRUCK CRANE USED IN UNLOADING A BOX CAR

minutes. Three boxes were slung together and a round trip was made every minute. "For the miscellaneous transfer of large quantities of package freight or other material through distances over about 400 feet the best procedure is to use the battery truck crane to tow trailers of about four each. To secure the maximum results there should be a train loading and another unloading while the machine with

minutes. Three boxes were slung together and a round trip was made every minute.

"For the miscellaneous transfer of large quantities of package freight or other material through distances over about 400 feet the best procedure is to use the battery truck crane to tow trailers of about four each. To secure the maximum results there should be a train loading and another unloading while the machine with

the third train is on the road between, thereby eliminating any waiting, for as soon as the load is delivered the vehicle immediately starts out with the empties from the previous trip. The number of trailers per train and the number of trains will depend on the distance, character of load and time taken to load and unload the trailers. Twelve is the usual number, divided into three trains. It will thus be readily seen that one battery truck crane and operator keeps about 600 square feet of loading space working to its full capacity, a performance that can be seen any day at the Bush Terminal.

"From the logs of a number of these machines for a long period of service in the Bush Terminal, New York, the following average week's work at towing trailers has been deduced:

Number of packages handled..	7,500
Average weight per package..	230 lbs.
Total weight handled (900 tons)	1,720,000 lbs.
Average distance packages were moved	900 feet
Of total time machine was working	80 per cent.
Packages delivered per working minute	3
Number of different jobs worked on	30
Heaviest single load drawn...	12½ tons
Cost of operator, interest, depreciation and power.....	\$24.00
Cost of moving one package 900 feet	⅓ cent
Cost of moving one ton (9 packages) 900 feet.....	3 cents

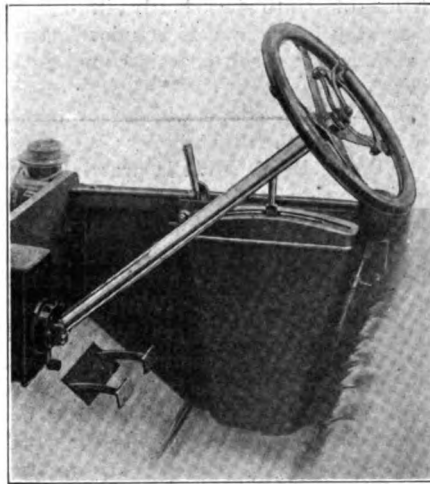
"Thirty tons of freight per hour can be moved one-half mile by this method under ordinary circumstances. For instance, 600,000 pounds of cotton have been moved one-half mile in a day, taking 24 bales per load and making a round trip every 12 minutes. This shows an average of two bales (500 pounds each) per minute through a distance of one-half mile. On a hurry order for cotton, 48 bales were alongside the lighter within 25 minutes after the order was given, thus demonstrating the flexibility and promptness of this system by which one man can handle more ton-miles than by any other method. On small package freight (canned salmon) using two trailers per train, one battery truck crane has moved 1,000,000 pounds 600 feet in 19 hours.

"A special line of trailers has been built for this work. The three wheels are 24 inches by 5 inches with roller bearings and the deck is 12 x 4 feet. The capacity is three tons if well distributed. The heavy towing tongue readily couples to the vehicle or to another trailer and no trouble is experienced in towing a long string around obstructions, as they follow perfectly in the course of the battery truck crane. In serving warehouses or shops with low doors the trailers are pushed, the front wheel of the string being steered by hand. This procedure expedites the interchange of empties for loads and vice versa at the loading and unloading points."

BUICK REARRANGES THE LEVERS

Departs Radically From General Practice
and Strikes a "Happy-Medium"—
Other Features of the New Line.

Opinions differ as to the proper arrangement of the control levers on a car built for right hand driving. It is probable that the verdict of the majority would be for the mounting of the levers inside the door on a car of the enclosed front type were it not for the fact that that arrangement not infrequently, and particularly in small cars, is apt to cause inconvenience through the proximity of the levers to the knees of the operator. In seeking a perfectly safe



BUICK ENCLOSED CONTROL SET

and satisfactory middle course the designers of the new model closed-front Buick cars have hit upon the expedient of "splitting the difference," figuratively speaking, and in eliminating the inaccessibility of the outside mounted levers and the awkwardness sometimes experienced with the inside arrangement, have mounted the levers on the dividing partition. That is to say, the levers are housed entirely save for the handles, which protrude above the side rail of the car in easy and natural positions.

The arrangement, which is here illustrated, is shown as installed on the new models 34 and 35, which just have been announced by the Buick Motor Co., of Flint, Mich. These correspond roughly to models Nos. 32 and 33 of last year's production, but in a number of respects besides that of the control are improved. As far as the control feature itself is concerned it need only be added that in principle and general arrangement it is precisely the same as the standard control mechanism. The only point of difference lies in the housing of the levers and the removal of the lever segment with its notches and slots from the lower end of the levers to the upper end. By the change it is likely that the movement of

the levers may prove to be rendered considerably more stable, while it almost goes without saying that the operations of gear shifting may be more easily performed.

Like the models already mentioned, the new chassis have a four-cylinder motor of 3¼x3¼ inches bore and stroke and built in the Buick style, which is to say with valves mounted in the cylinder heads and operated by means of overhead gear. A self-contained splash system of lubrication is used, circulation of the oil being maintained by means of a gear pump. Ignition is by a dual system using the Split-dorf magneto, and the general construction and equipment is such as experience in building immense quantities of similar motors has rendered standard.

Unlike the somewhat less pretentious models of last year the new cars are fitted with a three-speed selective type of change gear, the mechanism being of the pattern which usually is designated as "vertical," that is to say, having the lay shaft mounted directly under the driving shaft, instead of alongside it. The gear shafts are mounted on annular ball bearings, while the propeller shaft is carried on Hyatt roller mountings, as are the live members of the semi-floating rear axle.

As far as power plant and general chassis construction are concerned the two models are alike, they differ, however, in that model 34 is a two-passenger runabout, while model 35 is a four-passenger touring car. In wheel base and one or two other features outside the mere matter of body construction, they vary slightly. Model 34 has a 91-inch wheel base—one inch longer than that of the corresponding runabout of last year—and model 35 has a 102-inch base, which is two inches longer than that of the former model 33. The runabout has 30x3½-inch tires, which are the same size as those used on model 32, but on the touring car the tires have been increased from 30x3½ to 32x3½.

In increasing the prices of both models considerable additional equipment has been included. Model 34, which sells for \$900, is fitted with top, windshield and Prest-O-Lite gas tank, in addition to the more ordinary items of head, side and tail lamps, horn, tool and tire outfits. The touring car, on the other hand, now sells for \$1,060 and likewise is supplied with top, windshield and Prest-O-Lite tank. The prices of the former corresponding models were, respectively, \$800 and \$950.

Whips as "Automobile Accessories."

Whips henceforth may be included in the "accessories" for automobiles—in Germany! It seems that German cows do not mind the imperious toots of the horn and that more efficient, although old-fashioned, means are needed to drive them out of the way. Hence, a German manufacturer has supplied the deficiency by bringing out a whip for motorists, which can be folded into small compass when not in use.

ELECTRIC VEHICLES ON DISPLAY

Pleasure Cars and Trucks That Form
Part of New York's Electrical
Show—Features Disclosed.

An unusual amount of novelty marks the display of the nine electric vehicle manufacturers whose products are on exhibition at the electrical show which is drawing toward its close next Saturday evening, 21st inst., after a fortnight's run in the new Grand Central Palace, New York. Enlarged chassis and more commodious bodies are much in evidence, together with a well manifested tendency further to discard the practices of early carriage making days and build to the more modern and approved automobile standards. Several radical developments are apparent on entirely new models.

The respective makes on view are the Babcock, Bailey, Baker, Detroit, General Electric, General Vehicle, R. & L. Studebaker and Waverley. The total exhibit, including the cars which are used for demonstration purposes, includes about 30 vehicles, one-third of which are commercial cars or chassis and the remainder pleasure vehicles. Of the entire number just 21 machines are on the main floor.

The third floor of the building, which is really in the form of a second balcony, though separated from the main rotunda by a lattice, is given over entirely to automobiles—and the band. A suitable rink has been formed by roping off a path around the great floor and between the numerous pillars and there such of the visitors as are disposed to test the joys of electric motoring at no expense whatever are given "demonstrations."

The cars while not in use are stored—perhaps in view of the immensity of the floor space, "parked" would be the better word—at one side of the demonstrating track, in what by courtesy is termed a model garage. That it is so designated probably is due to the fact that a half-dozen different types of charging apparatus, including switchboards for direct and rectifiers for alternating current transformation, are installed and regularly used for replenishing the vehicle batteries.

Expressing the highest degree of vehicular convenience the new Waverley "Limousine Five," the most recent and proudest product of the Waverley Co., of Indianapolis, Ind., is one of the most striking vehicles on view among the main exhibits. It is of the modern inside-driven coupe type, the extreme length which is 144-inch wheel base renders available being made use of in the arrangement of a commodious interior capable of seating five passengers. Of these three must sit on the rear cross seat, one in a comfortable chair which is provided for the driver on the

left side of the body and about midway of its interior length, and the fifth on a universal folding seat beside the driver, which may be made to face either front or rear and which, when not in use, folds back against the side wall. The car has the standard Waverley motor and noiseless enclosed transmission, is swung on full elliptic springs both front and rear, and by reason of the separation of the battery into two sections, one of which is carried in front and the other in the rear, is of nicely balanced appearance. In the matter of appointments it is complete, its chief distinguishing point in this respect being the application of electric lighting to the steps. Whenever either of the doors is opened at night a concealed dome light beneath the sill of the body is lighted, thus causing the step and the ground immediately in front of it to be clearly illuminated. A Waverley brougham of standard pattern and a three-ton truck chassis complete the exhibit.

While the neat coupe which is shown at the exhibit of the Studebaker Automobile Co., of South Bend, Ind., is practically the same in design and construction as the corresponding model 17 of last year, it commands renewed attention by reason of the fact that its price has been reduced from \$2,400 to \$1,775. With an extra victoria body interchangeable with the coupe, thus making a summer and winter equipment complete, the machine sells for an even \$2,000. The victoria itself, a neat and attractive model, now sells for \$1,500, instead of \$1,850. A covered platform truck and a light delivery wagon likewise are shown.

The Bailey exhibit is graced with a new type runabout, the model on view being an "endurance car," which recently completed the 250 miles run to New York City from Boston, Mass., in 124 hours, with an average speed of 20 miles an hour, and a maximum at no time exceeding 26 miles an hour. The machine differs materially from the standard Bailey victoria, which also is on view, having an extremely low body somewhat resembling that of the conventional gasoline car type, full elliptic rear springs and a semi-elliptic cross spring in front, not to mention a tray body of wood heavily trussed with steel braces. A peculiar feature of the machine is that the motor, together with the silent chain reduction gear and the counter shaft, is boxed up in the body with the second section of the battery under the rear deck, thus silencing the action of the power plant. One of the original control features of the machine is a kick switch, by which a portion of the battery can be cut out, thereby affording eight running speeds.

The new style extension coupes which are shown by the Rauch & Lang Carriage Co., of Cleveland, O., differ from the corresponding types of last year in that they are fitted with double drop frames, whereby the central portion of the body is

brought four inches nearer to the ground. Larger wheels and an increase in the battery to 44 A-6 Edison cells are other noteworthy changes.

The construction of the Detroit electric, which is made by the Anderson Electric Car Co., of Detroit, Mich., is illustrated by the display of a handsome low-hung extension brougham, a "gasolene type" roadster, a neat little ambulance and a delivery wagon chassis. All types are shaft driven, of course, and as compared with corresponding models of last year embrace such changes as larger bodies, longer wheel bases and longer springs, frames lower by four inches, full floating rear axles, ball bearing steering knuckles, enlarged brake drums and a positive controller brake acting on the rear wheels.

One of the most luxuriously appointed, as well as one of the largest of the extension broughams shown is that exhibited by the Baker Motor Vehicle Co., of Cleveland, O. The machine is the new style "Special," that designation being applied by reason of the extra size and luxurious equipment of the body. The heavy truck chassis shown on the same stand is one of the finest examples of its class, indicating a careful application of standardized automobile parts.

A "gasolene type" runabout of comfortable size and de luxe equipment graces the stand of the Babcock Electric Carriage Co., of Buffalo, N. Y., as does a rather unusual type of vehicle which may be described as a coupe-landaulet, and which, like the other, has a battery equipment concealed under a false bonnet of the sort that ordinarily houses a gasoline engine. The General Vehicle Co., of New York, which builds commercial types exclusively, shows one of its 700-pound delivery wagons, which is probably the lightest commercial electric on the market at the present time, and also a 2,000-pound transfer wagon. By far the most novel feature of the commercial vehicle display is the General Electric Co.'s new battery truck crane, a portable hoist designed for yard work about industrial plants, and which is on view only in the "model garage" on the third floor of the Palace.

In addition to the exhibits of cars there are a number of displays of batteries, electric automobile lamps and lighting equipment, rectifiers, transformers and other equipment and apparatus of use to the manufacturer or operator of an electric car. Among such exhibits are included those of the Edison Battery Co., Edison batteries and battery testing device; Electric Storage Battery Co., Exide and Iron-clad batteries; Empire Engineering and Supply Co., charging sets; General Electric Co., charging sets and lamp equipment; Gould Storage Battery Co., Gould batteries; St. John Corporation, ignition battery charging rectifier sets; Standard Oil Co., of New York, lubricants; Westinghouse Electric Co., charging sets.

WEDGE PRINCIPLE IN WHEEL DESIGN

Radical Construction Makes Progress That Compels Attention—Adjustability and Long Tire Life Its Advantages.

Of many attempts to improve on the standard types of wheels, few have reached beyond the files of the patent offices. About the only notable exception to the rule is the so-called Wedge wheel, which appeared on the English market a year or so ago and which was of such radical design that few accepted it seriously. In the interim, however, it has made such substantial progress that it now is commanding respect and general notice and no longer is to be sneezed at.

Wedge Wheels, Ltd., a London concern, which produces the wheels under the patents of L. Turner, already has succeeded to the extent of placing over 600 sets of wheels in the service of the London Gen-

between certain pairs of spokes in the hub and are tied through to the band by means of rods and turn-buckles. The hub wedge

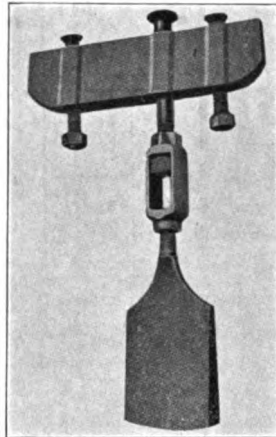


FIG. 2

is shown in Fig. 1, while one pair of wedges, assembled as in the finished wheel, is shown in Fig. 2. Successive steps in assembling the wheel are illustrated by

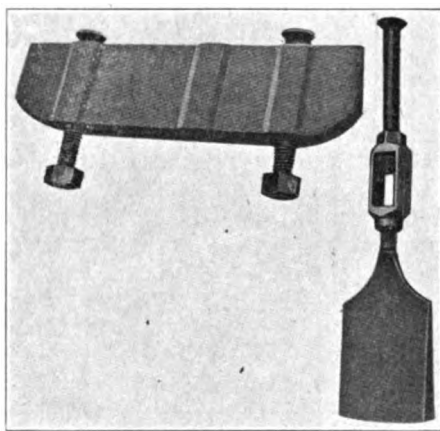


FIG. 1

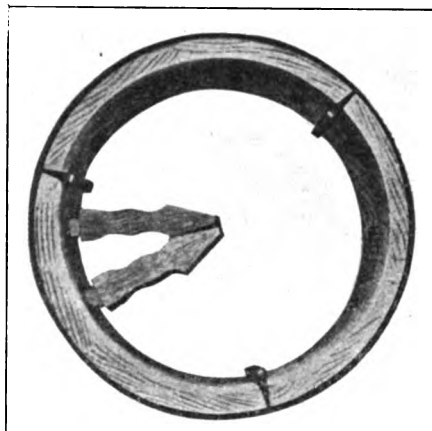


FIG. 3

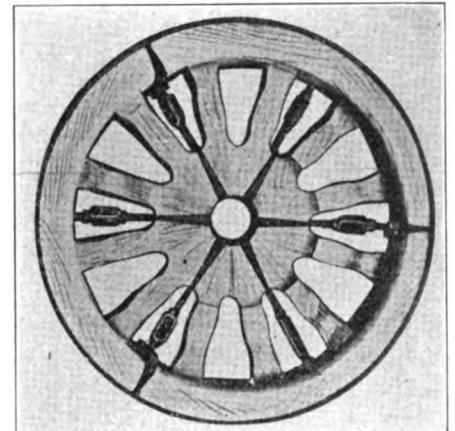


FIG. 5

eral Omnibus Co., that great 'bus "trust" having also paid royalties on 1,600 sets. A large armament, ship building and motor manufacturing company has taken out a license to manufacture the wheels for military purposes, while the controlling company itself has just opened a factory of its own and begun to build the wheels on a large scale.

The Wedge wheel construction introduces both the tension and compression principles. Instead of being assembled in the regular way and set up by the contraction of a shrunk-on felloe band, the spokes and felloe are expanded outwardly into the band. That is its radical feature. In accomplishing this object certain of the felloe segments are separated by wedges, like that shown in the upper part of Fig. 1, which are anchored to the band and drawn outwardly toward it when the bolts are set up. The effect, of course, is to expand the felloe against the band.

Similarly other wedges are introduced

Figs. 3 and 4, while the finished wheel is shown in Fig. 5.

Among the advantages claimed for the wheel are that no forge work or cold pressing is necessary in assembling or repairing

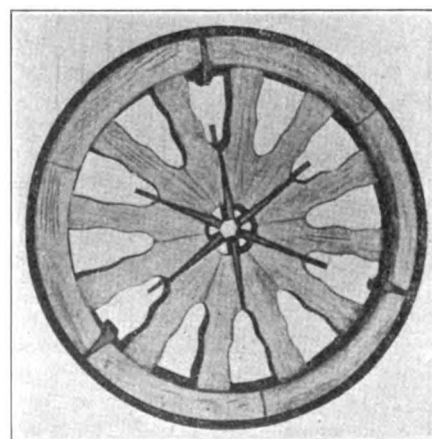


FIG. 4

it; that it may be adjusted to compensate for shrinkage at any time—even on the road, if need be—that the tensioning of the wedges tends to keep it true better than the ordinary method of wood wheel construction; that its resiliency is increased owing to the yielding nature of the assemblage; that the wheel is lighter and more durable than the ordinary type of artillery wheels.

In proof of the latter assertions it is claimed that one wheel has made a record of one million ton miles running on a seven-ton London omnibus, while as indicating its resilient qualities it is said that the first 'bus wheel installed in London has made several record tire mileages; the first tire mounted on it having run 26,900 on a six-ton 'bus. In respect to the weight question these figures are given: Wedge wheel artillery type, 216 pounds; ordinary wood artillery wheel, 224 pounds; steel artillery wheel, 423 pounds. The saving in weight thus indicated is respectively 8 and 207 pounds.

That the wedges are only a first cost, be-

ing useful in successive wheels; that damaged portions of the wheel may be replaced at slight expense and with ordinary tools and labor; that wheels may be shipped "knocked down;" that the wheels are adaptable to a wide variety of rim shapes and wheel designs in general, and that the life of a Wedge wheel is three times that of the standard artillery type, are other salient points which are urged in its favor.

Cleaning Exterior of the Radiator.

"Scale" inside a radiator is not the only cause of defective cooling. In time all radiators collect a certain amount of dust and mud from the roads and, as a result, cool air is prevented from coming in direct contact with the tubes. To clean the radiator a stream of water should be gently turned on it, but first a piece of tarpaulin should be placed behind it to prevent the motor, and particularly the magneto, from becoming wetted.

New York Makes a Start in that Direction—System Evolved to Check “Joy Riding” and to Keep Track of Cost of Operation and Maintenance.

rection. The system employed by the branch of the government in which the most headway has been made and which seeks to keep track not merely of the cars' half hourly movements, but to make the

Commissioner Fosdick is by no means the first to take cognizance of the muddled state of affairs, however, and the steps which he advocates are in line with the urging of others, notably Borough President McAneny, of Manhattan, and Aldermen Smith, Folks, Brady, Cunningham and Delaney, comprising a special automobile investigating committee. These and others have given the peculiar existing conditions much thought. President McAneny, whose department always has been noted for the conservatism of its automobile mileage requirements, enjoys the reputation of being the only official who actually knows how much it costs to run the cars in his department. The distinction is one that sundry other officials might not covet, inasmuch as in their respective cases its revelations might prove of an embarrassing character.

It is upon the accounting system which is in use in the Borough President's office that Commissioner Fosdick bases his recommendation that a uniform cost system be installed in all departments. This measure he urges not only for its intrinsic value, but also as the only legitimate way of determining the degree of centralization possible in handling city cars—even as the only proper basis of determining

OBVERSE OF THE "ANTI-IOY-RIDE" REPORT CARD

gasolene consumption agree with the mileage covered is therefore of wide interest not only to other municipalities, but to large commercial corporations as well.

The New York official to whom the mag-

[illegible]

STATE HEREON IN DETAIL ALL REPAIRS, TIRE CHANGES, ETC...ETC.

REVERSE OF THE "ANTI-JOY-RIDE" REPORT CARD

Since the time several years ago when the Motor World printed the faithful and illuminating story and diary record of a chauffeur employed by a municipality and at least temporarily checked the scandalous "joy riding," efforts have been made in several departments of several cities to evolve systems that would serve not only to lessen, if not eradicate, the evil, but to render possible an accurate check on both the use and the cost of operating the cars which the taxpayers provide.

New York is one of the cities in which at least a start has been made in that di-

nitude of the problem seems to have been brought home most strongly, and probably for very good reason, is Commissioner of Accounts Raymond B. Fosdick, an individual who has been particularly active in prosecuting the affairs of his depart-

what the municipal transportation requirements really are. That the resulting records would serve as an accurate index of the doings of the city's servants when away from their desks is an interesting phase of the project which the commis-

PRESIDENT OF THE BOROUGH OF MANHATTAN

OFFICE OF THE COMMISSIONER OF PUBLIC WORKS

Statement of Cost and Maintenance of Automobiles as at JULY 31st - 1911.

IDENTIFICATION OF CAR		POPULARITY		BUICK TOUR		BUICK TOUR		BUICK RUN		BUICK RUN		AUTO TRUCK		TOTAL	
MAKE	MODEL	POPULARITY	DATE	BUICK TOUR	BUICK TOUR	BUICK TOUR	BUICK TOUR	BUICK RUN	BUICK RUN	BUICK RUN	BUICK RUN	AUTO TRUCK	AUTO TRUCK	TOTAL	TOTAL
2. INVESTMENT															
ORIGINAL OUTLAY FOR CAR AND APPURTENANCES															
APPROPRIATIONS SUBSEQUENTLY PURCHASED															
DATE OF PURCHASE															
3. EXPENSES TO DATE															
MAINTENANCE															
Repairs															
Depreciation															
OPERATION															
STORAGE															
TOTAL EXPENSES TO DATE															
4. AVERAGE EXPENSES PER MONTH															
MAINTENANCE															
Repairs															
Depreciation															
OPERATION															
STORAGE															
TOTAL AVERAGE MONTHLY EXPENSES															
5. EXPENSES FOR MONTH OF JULY 1911															
MAINTENANCE															
Repairs															
Depreciation															
OPERATION															
STORAGE															
TOTAL EXPENSES FOR MONTH															
6. SUMMARY															
TOTAL MILEAGE															
WORKING DAYS															
GALLONS GASOLINE USED															
GALLONS OIL USED															
AVERAGE MILEAGE PER															
WORKING DAY															
GAL. GASOLINE															
GAL. OIL															
COST PER MILE FOR															
TIRES															
REPAIRS															
GASOLINE															
OIL AND SUPPLIES															
STORAGE															
SALARIES & WAGES															
TOTAL															

SPECIMEN RECAPITULATION SHEET EMPLOYED BY NEW YORK'S COMMISSIONER OF PUBLIC WORKS

sioner tactfully permits himself to overlook.

The commissioner's recommendation takes the form of a memorandum addressed to the mayor and bearing date October 31d. In it he sets forth that there are at present 130 machines owned and maintained by the departments and bureaus, the original cost of which aggregates approximately \$300,000. The annual payroll for the 110 chauffeurs, whom a munificent civil service bureau has saddled with the title of "automobile enginemen," amounts approximately to \$110,000, while maintenance of the machines, including repairs and renewals for the first six months of the current year amounted to \$68,550.86. But, as the commissioner adds, "in the absence of uniform expense records, this figure only approximates the true operating cost."

After referring to the one department (President of the Borough of Manhattan) in which automobile expense records are kept which reflect the true cost of operation, he goes on to remark that where expense accounts are maintained at all in other departments they are founded on various bases. Not only are most of the systems employed inaccurate, no allowances being made for remaining service value or depreciation, but the absence of uniformity renders impossible a study of comparative costs.

One or more central garages located in each borough and a centralized, rather than an individual departmental control of the city's cars, would be instrumental in bringing about a number of improvements. It is possible, for example, that the number of automobiles actually needed for essential service, might be reduced and a corresponding degree of convenience and economy secured. Such a system, of course, would not be immediately applicable to all sorts of service, and the commissioner makes haste to except the police and fire departments from consideration. What he particularly urges is that the number and type or size of cars maintained in each of the several municipal garages could be adapted exactly to the probable requirements of the service, while the number of chauffeurs and the hours of their labor might be better regulated. Economy in the wholesale purchase of supplies and parts is likewise foreseen, while the commissioner adds that "it is more than probable that arrangements could be made with manufacturers to purchase, for the city's use, uniform types of cars at dealers' prices, with a corresponding gain in the matter of replacements through the use of standardized interchangeable parts."

Nothing of the sort is possible, however, as he points out, until a standard accounting system shall have been installed, and he urges the importance and thorough practicability of an immediate move in this direction.

As an interesting sidelight on the re-

port in question is this table, showing the state of the city's automobile equipment on June 30th last:

bureaus with which the report deals is the mileage by speedometer record included. These are the Department of Water Sup-

Department or Bureau	No. Cars	Cost Value	Total Operating Cost
President Borough of Manhattan.....	*10	\$22,487.00	†\$7,921.20
President Borough of Brooklyn.....	12	13,867.50	12,117.80
President Borough of The Bronx.....	3	5,920.00	4,679.99
President Borough of Queens.....	‡ 0	.....	1,625.95
President Borough of Richmond.....	10	14,867.40	4,448.00
Department of Finance.....	5	8,900.00	4,600.61
Department Water Supply, Gas and Electricity.	16	22,375.76	5,553.40
Department of Docks and Ferries.....	4	12,513.00	4,961.23
Department of Street Cleaning.....	6	13,915.00	9,826.16
Department of Correction.....	1	4,500.00	1,993.69
Department of Public Charities.....	7	20,070.00	6,804.96
Department of Bridges.....	6	12,455.94	3,781.52
Department of Health.....	11	23,497.00	9,856.16
Department of Education.....	4	10,795.00	3,381.11
Police Department ..	6	18,915.00	5,979.79
Fire Department	9	31,820.00	17,368.68
Parks, Boroughs Brooklyn and Queens.....	2	6,630.00	2,237.20
Parks, The Bronx.....	1	4,000.00	719.63
Board of Water Supply.....	16	45,627.50	17,368.68
Bellevue and Allied Hospitals.....	1	3,000.00	2,321.28
Commissioner of Accounts.....	1	980.00	1,082.20
Totals	131	\$297,136.10	\$128,367.45

*Sold one car during the period.

†Includes salary of "enginemen," maintenance (repairs and renewals), and expense for cars hired.

‡Purchased four cars for \$9,239.51 and afterward sold them at cost. Operating cost includes salary of three enginemen for January, \$216.00; and rental, \$1,409.95.

Persons of mathematical inclination are at liberty to determine the average cost of the cars purchased by the various departments and also to work out by long or short division the average cost of maintenance and repairs per car, as well as to speculate on the probable causes of the resulting lack of harmony. As the commissioner of accounts observes, in slightly different language, it doesn't matter much anyhow. Being computed to different standards and lacking the all-important mileage totals, the figures are interesting, but not conclusive. That they err on the low side, if at all, is probable.

Hardly more satisfactory are the findings of the Aldermanic investigating committee, which filed its 27-page report under date of July 25th last, the report being a brief digest of the 900 pages of sworn testimony taken by the committee in its effort to ascertain the advisability of establishing a central municipal garage. As the period of its investigations is different from that covered by Commissioner Fosdick's report, it follows that the data established by the Aldermen are not in absolute agreement with those presented by the commissioner of accounts.

For example, the total number of machines in use during the year 1910 is shown to have been an even 100, 16 of the 21 departments and bureaus now employing automobile transportation being accounted for. The approximate total cost of the equipment is given as \$220,500, and the total operating cost, including livery charges for hired cars, aggregates \$176,570 and some odd cents.

In only 8 of the 16 departments and

ply, Gas and Electricity, Presidents of the Boroughs of Richmond and Brooklyn, Commissioner of Accounts, Department of Bridges, President of the Borough of Manhattan, Department of Parks for the Boroughs of Brooklyn and Queens and the Department of Correction. Forty-eight automobiles were operated during the year by these eight departments at a total operating expense for the year of \$73,148.07. The sworn statement of mileage by cyclometer reading adds up to a total of 272,228 miles, which amounts to an average operating expense averages 26.83 cents than two miles per car per day. The average operating expense averages 26.83 cents per mile, including gasoline and oil, salaries of engineers, storage, repairs, tires and sundries. At that the total and average cost figures must be regarded as conservative, since they are reduced to some extent by non-allowance for interest on investment, depreciation and other legitimate "overheads," while in one instance repair costs are omitted altogether on the innocent appearing pretext that repairs are made by departmental labor on the official premises, and, therefore, are costless.

As is usually the case with the reports of investigating committees the aldermen concluded their efforts by draughting a set of earnest recommendations based on their researches. The aldermanic suggestions in this instance are numbered consecutively from 1 to 15, with appropriate subdivisions marked (a) and (b), and set forth a number of radical opinions, as, that no car should be purchased for officials' use costing more than \$2,000, while those for subordinates should cost between \$750

and \$1,500. They embody the central garage and purchasing bureau ideas and other up-to-date features, and, if destined to bear fruit, might be considered a noteworthy memorial to a serious and well-wrought undertaking. But as they now lie moldering in the archives with the dust of three months already upon them they may be dismissed as of no further relevance.

It must not be imagined for a moment that the city's automobile expense account is high as a result of lax bookkeeping or anything of that sort. Indeed, the amount of accounting done by the various departments in an effort to find out how much their respective "rides" cost is positively stupendous—stupendous because of the misdirected energy which it reveals. As has been indicated, most of the department heads ignore the matter of mileage, and hence have no basis of comparison with the results obtained by more legitimate

andum showing that \$152.05 worth of new casings, but no inner tubes, were purchased during the year 1910, also are designated.

As further showing the painstaking accuracy of the departmental bookkeeper, a further memorandum lists in extreme detail articles "lost, condemned or disposed of" during the year 1910. Among others it is recited that "½ set" of Weed chains, 1 square key, 1 valise key and 1 Solar tail lamp were "lost while in use." Such articles as a gasoline funnel, a spark plug wrench, a tire pump, water pail, pair of pliers and a brass three-way valve, it is not surprising to find described as "lost in garage."

The most valuable part of the document, however, is that dealing with the net cost performance of the car during its 28 months of department service. Its total travel, as the record goes to show, was 14,139 miles, and as 1,892½ gallons of gaso-

of 442 miles of streets, 500 miles of sewers and 63 buildings.

Although the "master sheet" or summary, shown on an adjoining page, indicates that the various cars are used mainly by certain designated officials, it is explicitly stated by officials of the department that no one has exclusive use of any of the cars, not even Borough President McAneny himself. The car which is used mainly by the president, and which, by the way, was rescued from dead storage, after having been discarded by a former president and put into commission again at a cost of \$996, is sent out only on assignment by the properly constituted official, just like the others.

An official who can show good reasons why he should use one of the department machines on a given day and date makes application to Secretary Case, of the Department of Public Works, which is a part of the same general department, and receives an assignment. Each morning the various chauffeurs are given assignment cards on reporting for duty. These are cards dated and charted to show the assignments for different portions of that day. For example, the form here reproduced would indicate that on the day in question Commissioner Patterson required the services of the rejuvenated Peerless car, above mentioned, from 8 to 11:30 in the morning and again from 3:30 to 6:30 in the afternoon. The intervening time, from 1 to 3:30 the car was at the disposal of Mr. Albright. So much for the assignments.

In addition the chauffeur has a daily report card—"anti-joy ride card," it might be termed—both front and back sides of which are here reproduced, which is made to check against the assignments, and this card really constitutes the key to the system. Thus, on leaving the garage in the morning the date, car, driver's name, time "out," cyclometer reading and gasoline gauge reading items are properly filled. Similarly, on arriving at the first place of assignment, and later, on finishing the assignment, the clock time, elapsed time, places visited and "in charge of" or "passenger list" blanks are filled, thereby completing the performance record of the car for that particular job. At the end of the day the mileage, gasoline and time totals are added to the card, while on the back side are entered reports as to the purchase of supplies and also a complete "trouble" report. The card then goes in the diary or permanent record kept by Secretary Case, reference to which enables every movement of the car to be located, traced and accounted for at any hour of the day or night.

The sheet recording system embodies five form styles, all of which are shown in the accompanying reproductions, and all of which are practically self-explanatory. Needless to indicate, the "daily record of automobiles" is made out from the

AUTOMOBILE ASSIGNMENTS														DATE													
7.00	7.30	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	12.00	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30	7.00	7.30		
Peerless												Com. Patterson - Mr. Albright - Com. Patterson -															
POPE HARTFORD																											
BLACK BUICK																											
RED BUICK																											
WHITE HIGHWAYS																											
WHITE SEWERS																											
P. B. & O. TRUCK																											

SAMPLE "ANTI-JOY-RIDE" DAILY ASSIGNMENT CARD

means. In other cases, where great pains are taken, the cost still remains exorbitantly high.

An idea of the minutiae of municipal accountancy may be obtained from a glance through the 14-page inventory of the automobile equipment of the commissioner of accounts, "as of January 1, 1911." A 1905 Pierce Great Arrow car of 28-32 horsepower constituted the sole piece of apparatus, it having been purchased in 1908 for \$980. "Appurtenances" tires and "betterments" to date of inventory brought its total theoretical value up to \$1,560.95. Depreciation, based on decrease in its model and market value only, reduced this amount by \$640, leaving a net worth to the city of \$920.95. The car was sold at public auction February 21, 1911. But to return to the inventory.

Among the duly credited items are included "1 chain and lock (Yale)," purchased August 24, 1908, at a cost of \$3.50, which is reported to be in "bad condition;" likewise "1 oil can, 1 small and 1 medium screwdriver, 1 strap for battery box and 1 detachable tonneau valise," all of which are "worn." Such items as a grease gun, a gas generator, a 12-ounce hammer and "1 special iron" (history and purpose undefined), are among items mentioned as being in "fair" condition. The total value of the appurtenances named and others on the long list is \$278.71. Tire casings to the value of \$182.05, together with a memor-

lene were used it follows that its average performance was something like 7.43 miles to the gallon. The total cost figures, item by item, together with the averages per mile are as follows:

Cost of	Total	Per Mile
Gasolene	\$303.68	\$0.0215
Oil and Supplies.....	94.41	.0067
Storage and Cleaning...	640.22	.0453
Tires	679.35	.0480
Repairs	1,040.27	.0743
Depreciation	394.70	.0279
"Auto-Engineman"	2,140.00	.1520
	\$5,292.63	\$0.3757

It was the high cost per mile coupled with the fact that the car was idle a great part of the time that induced the conscientious commissioner to dispose of it.

The system by which the performance of the six cars operated by the office of the President of Manhattan Borough is kept track of and which has proved so effectual as to attract the commendation of the commissioner of accounts, not to mention the jibes of other departmental officials, is neither complicated nor liable to miscarriage through petty negligence. It involves a simple system of instruction, report and cross-check cards, together with proper sheet forms for preserving the records. The department affected by the system includes in its jurisdiction highways, sewers and public buildings, save those of the fire, police and school departments. Its duties involve the supervision

report cards just described and covers normal performance only. The "short sheet" is supplementary to this and is intended to cover repair specifications and costs, down to repairs to tires—tire replacement date being carried on the main record. In addition a complete service record of tire casings is maintained on an appropriate sheet which forms the fourth part of the record.

For purposes of comparison and performance check the facts embodied in these record sheets are collected and entered in the form of a monthly statement, in which the data pertaining to all the cars are assembled in parallel columns, first in totals, second in averages to date, third in averages for the month closed and fourth in grand total and total average forms. This presents at a glance the entire operating record of the department in respect to both cost and performance. Likewise it renders a complete accounting for the entire time of each of the cars, which is the feature relied on to put the shackles on the departmental joy-ride. The figures given in the accompanying sample sheet, "as of July 31st, 1911," are both instructive and suggestive.

It usually is reasoned by impatient individuals that New York's badness is entirely comparable with her bigness. Hence the revelations of the 1911 budget and its attendant exposition on lower Broadway are apt to be received with a succession of long-drawn groans. Figures relating to the city's automobiles are by no means excepted from the lamentation. Every department that has tested the advantages of automobile transportation is ready to convince the first listener that it is urgently in need of more facilities of the same sort.

For the maintenance of automobiles alone the sum of \$108,215 is asked, being an increase of nearly \$20,000 over the amount nominally expended for that purpose during the current fiscal year, and not to mention further expenditures of the same sort which may have been concealed beneath the well-worn "contingency" blanket. To the taxpayer who is convinced that automobiles are used by the city's servants mainly for joy-riding purposes this is almost too much for words. But here is an item or two out of another column just by way of counter-irritant: "Forage, shoeing, boarding of horses, \$1,119,951.84; decrease over last year, \$86,923.30. Hired teams, horses, etc., \$1,155,197.25; decrease, \$176,420.05. Purchase of horses, \$168,125; decrease, \$39,524. Purchase of automobiles, \$7,000; increase, \$3,000." The casual and perfectly innocent item "miscellaneous" alone amounts to \$442,039.75—the fractional appendage being particularly important, because the entire amount is exactly \$235,799.75 greater than the corresponding requirement of the 1909 budgetary affliction.

More than a million and a tenth for horse fodder and shoes, as against a hun-

dred thousand for automobile upkeep! If the latter item were not so large it might not seem quite so scandalous. Borough President McAneny has been able to show a saving of \$13,000 a year by lopping off \$33,000 for horse, carriage and automobile hire and spending \$20,000 to operate his half-dozen cars. The saving in legitimate time investment, of course, cannot be shown by figures, but the testimony of other departments that use motor transportation may be taken in this connection without the slightest question either of veracity or exactitude. They unanimously agree that it is impossible to calculate, but is of prodigious benefit to their great and beloved metropolis.

Ignition Lock With 1,000 Combinations.

To discourage and prevent the unauthorized use of automobiles, A. D. Methven, who is chief inspector at the Cartecar



factory, in Pontiac, Mich., has patented and is preparing to market a combination ignition switch and lock which embraces a number of novel features. As may be seen in the accompanying illustration, the lock is constructed somewhat after the manner of those on bank vaults and like them may be adjusted for an almost infinite variety of combinations. The switch itself is of the orthodox type and size, but until the dials are turned to obtain the predetermined combination, the switch handle cannot be moved; it turns quite easily, however, to connect either battery or magneto when the proper combination is set. The particular virtue of the device is that as no key is required none can be lost or mislaid, and in view of the fact that upward of 1,000 combinations can be obtained, it might require a greater amount of tinkering for a person other than the owner to strike the right one than it would for an expert to pick an ordinary lock and make off. The lock may be applied in place of the ordinary type of coil switch in a short time and without the use of special tools or accessories.

To Obtain Most Use from Studded Tires.

Using a steel-studded anti-skid tire after the studs have been worn down, is a mistake, says a Michelin tire man—and a costly one. For no matter how hard the steel of which the studs are made, constant use eventually will cause them to wear down. This is proved by the fact

that the best cutlery steel cannot resist the friction of a grindstone.

In districts where the roads are uniformly good, the studs are very long-lasting, and even on rough roads they will stand a great deal of work. But in time, constant usage wears them down. Even though the casing may be in good condition, the leather covering never should be made to serve as a tread. Its purpose is simply to afford greater protection against possible punctures, and to give extra support to the steel studs. Invariably the total destruction of the tire quickly follows when the leather tread is pressed into a service for which it was never intended. The casing is of no further use after the leather has gone. If the canvas is not too much worn, the envelope can be restudded and fitted with new leather or it can be fitted with a plain tread, and utilized for one of the front wheels.

It should be remembered also that the efficiency of a steel studded anti-skid tire depends almost entirely upon the air pressure maintained in it. The leather band in which the steel studs are imbedded is a great deal less elastic than rubber, and, as a result, a certain amount of stress is created between the two materials.

When Bearings May Cause Jerky Running.

While inequality of compression and the consequent jerky running of a motor generally is caused by a compression leak somewhere, it sometimes is caused by a difference of distance between the respective piston heads and the crankshaft. Which is to say that when a motor has been overhauled, more metal may have been scraped from the bearings of one connecting rod than from another, with result that when the cylinders are replaced the compression space in that cylinder is slightly larger and the compression is therefore less than in the others. The easiest way of detecting any difference is to line the tops of the pistons up and place a straightedge across them; if one piston is low it will show readily. The remedy consists of scraping the other bearings down to match the one which has been scraped too much, or else fitting a new bearing in place of it. No matter how little the difference in the heights of the pistons may be it should be corrected.

What Leaky Front Hubs May Indicate.

Leaky front hubs are by no means uncommon, but whereas the condition generally indicates an over supply of lubricant, it may foretell a shortage instead. The reason for the apparent incongruity is that very nearly all greases will liquify to a greater or less extent when subjected to a continual churning action. When in a semi-solid state the grease cannot work out because the interstices are too small. When the grease is almost as thin as water, however, aided by centrifugal force it readily oozes out.

CANNOT CUT RATES FOR INSURANCE

New York's Superintendent Interprets
New Law Forbidding All Discrimina-
tions—A. C. A. Loses Case.

Hereafter, in New York State, at least, no insurance company, or broker, can "split commission" with, give a rebate or quote special rates to, the Automobile Club of America or any other club or corporation, however large or however desirable may be their business. The New York State Insurance Department has so decided.

The ruling, which was rendered last week by W. H. Hotchkiss, superintendent of the department—who, incidentally once was president of the American Automobile Association—in the complaint of discrimination brought by several fire insurance brokers against the London, Liverpool and Globe Insurance Co., the discrimination consisting of a contract to write fire insurance policies on the cars owned by A. C. A. members at 80 per cent. of the prevailing market rate.

Both the insurance company and the club interposed a defense, the former making the most of the comparative lack of "moral hazard" and the small loss—about 20 per cent.—sustained under the agreement, while President Sanderson, of the A. C. A., maintaining the club's "right of contract," put these two questions to Superintendent Hotchkiss:

"Is it the duty of the Superintendent of Insurance of this State

"First—To accept as final and proper the rates made by a combination of companies?

"Second—To prevent the citizens of the State, individually or as members of a club, from obtaining any lower rate than is quoted by the combination?"

Answering "No" to both questions, Supt. Hotchkiss proceeded to inform Mr. Sanderson that "the discriminations aimed at by section 65 (the anti-rebate section) and by section 141 (the rate-making association section) is clearly any discrimination which may be practiced by companies irrespective of whether the rates used by such companies are those suggested by rate-making associations or not. The association suggests the rate; the company, so far as the citizen is concerned, makes and charges it. If the rebating of premiums paid in connection with indemnity against the fire hazard is wrong—and since June 23, 1911, it has been a crime—the giving and acceptance of a discrimination, amounting in effect to a rebate, is equally wrong, and, while not a crime, must, as provided in section 141, be removed whenever adjudged such by this department. The latter is perfectly aware of the tests on which its judgment must be based. It

is also aware, as should be yourself, the members of your club and all other citizens, that under the present law the giving of cut rates of automobile insurance is not only a moral rebate but a legal discrimination, unless the facts clearly meet such tests."

Mr. Hotchkiss amplified this opinion in a memorandum issued in connection with the case, in the course of which he said:

"At the hearing it appeared that, in deference to the views of the department that this was a violation of the new law prohibiting discriminations, the company has discontinued the practice and did not intend to resume it. For this reason there being some doubt as to a technical breach of the law—none of the policies written by this company for members of such club having been so written after September 1, when the law went into effect—the memorandum of the Superintendent, filed today, indicates that the pending proceeding has been dismissed.

Such memorandum, however, discusses the meaning of the new law against discriminations and its interrelation with the coincident statutes prohibiting rebating and requiring the licensing of agents and brokers, and the following conclusions are stated:

"First, That section 141, enacted by the recent Legislature, gives the department power not merely to supervise and examine so-called rate making associations but also to look into any rate charged by any corporation authorized to transact fire insurance business in the State, to determine whether such rate discriminates unjustly between risks similarly situated and having the same fire class record.

"Second, That so far as automobile insurance policies are written by fire insurance companies and insure against the fire hazard the function of the department is the same.

"Third, That consequently the department has jurisdiction to examine into the basis of rates of any rate making association which purports to fix rates on automobile policies involving the fire hazard.

At the hearing it was urged that these powers were limited to corporations forming part of such rate making associations and that to rule otherwise would be tantamount to declaring that the State of New York had undertaken to make the rates of fire insurance. As to this the memorandum states:

"There is no magic in the phrase 'rate making associations.' . . . The purpose of this section is to prevent discriminations not between corporations obligated by contract or in honor bound to accept the decision of a rate making association and companies not so obligated, but in the rates charged citizens of New York by any specified corporation authorized in this State. The rate making association does not 'make the rate,' it suggests it; the insuring corporation both makes and

charges the rate which the insured citizen pays."

In answer to the contention that in issuing an automobile policy a fire insurance corporation was giving indemnity against a transportation hazard, and therefore was doing the business of marine insurance, the memorandum states:

"The test by which this question is to be determined is not the character of the property insured but the words of the section itself. If, as previously concluded, the discrimination practiced by a corporation may after proper inquiry and hearing be ordered removed, any corporation which is 'authorized to transact the business of fire insurance within this State' is by the words just quoted made subject to a proceeding to that end. . . . This does not mean—as has been suggested in some quarters—that . . . the State has undertaken to make rates. The State has justly undertaken to unmake rates which unjustly discriminate."

The memorandum concludes in discussing the contention of the insurance company and the club that the surrounding circumstances—namely, such club's fire-proof garage, the loss ratio of previous insurances to its membership, and the like—is justifying such discrimination, as follows:

"Clearly, if a fire insurance company should give a lower rate to a corporation owning 100 taxicabs than it gave to a corporation owning 10 such vehicles, there would be little debate based upon the moral hazard of the officers of such corporation as to where such taxicabs were kept or as to the rules regulating the drivers thereof. Just as clearly would it seem to be the duty of the department to order discriminations removed where the persons in whose favor the discriminations are made are members of a single organization, there being concededly many persons of the same class owning generally the same kind of cars and employing similarly reliable chauffeurs, but who, perchance, are not associated together. . . . The same kind of an argument would justify a railroad's rebate to a big and well-managed manufacturing corporation as against a small and struggling shipper. While insurance companies are not common carriers, the principle in both is the same.

"It is thought that this New York law, as thus interpreted, carries the supervision of insurance rates and the preventing of discriminations and rebates in connection therewith much farther than the law of any other State has yet gone."

Wisconsin Adopts Red and White Tags.

Red and white will be the color scheme of Wisconsin's license plates for the year 1912. They will replace the green and white which have been in use this year. The letters will be white enamel raised on the red background.



995,925. Starting Device for Explosion Engines. Herschel B. Strunk, Detroit, Mich., assignor of one-third to Edward P. Lang, Chicago, Ill. Filed Aug. 1, 1910. Serial No. 574,974.

1. The combination with a drive shaft having an internal combustion engine connected thereto, of a spring drum loosely mounted upon said shaft; an annular ratchet secured to a face of said drum; spring pawls engaging said ratchet for preventing rotation of the latter in one direction; a spiral spring within said drum and having its outer end connected therewith; a sleeve loosely mounted upon said shaft and connected with the inner end of said spring; ratchet teeth upon the end of said sleeve; pawls co-operating with the ratchet upon said sleeve for normally preventing rotation of said sleeve in one direction; manually operable means for releasing said last mentioned pawls; a pawl and ratchet connection between said sleeve and said shaft whereby upon release of said spring when in wound condition, said shaft will be rotated to start the engine; a friction disk splined to said shaft and adapted to engage a side of said drum to effect the winding of said spring when said shaft is in operation; and means for manually operating said friction disk, substantially as described.

995,948. Engine Crank. John W. Bracken, Lakeland, Fla. Filed Apr. 20, 1910. Serial No. 556,495.

In a device of the class described, the combination of a reciprocating member of a two part driving shaft, stationary disks surrounding the ends of the driving shaft and mounted eccentrically thereto, guiding members keyed to the ends of the driving shaft, cranks slidably mounted upon said guiding members and adapted to rotate the same, a pair of sleeves surrounding the stationary disks, a wrist pin having its ends keyed to the sleeves and having the cranks and reciprocating member journaled thereon, a balance shaft and an inter-gear connection between each end of the balance shaft and the respective ends of the driving shaft.

995,949. Truck Side Frame. Albert O. Buckius, Jr., Chicago, Ill., assignor to The National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed Sept. 10, 1910. Serial No. 581,464.

1. A truck side frame having two bearing faces at an angle to each other, a journal box seated on said faces and a strap arranged to draw and hold the box against said faces; substantially as described.

995,961. Valve Base for Pneumatic Tires. George W. Greene, Watertown, Mass., assignor to Shawmut Tire Company, Boston, Mass. Filed May 21, 1910. Serial No. 562,734.

As an article of manufacture an inner tube for pneumatic tires composed entirely of rubber and having at a suitable point upon the inner face thereof a plane patch or reinforcement composed of layers of fabric and rubber vulcanized together and to the inner surface of the tube for the

support of a metal valve stem, substantially as described.

995,976. Carburetter. Charles Edward Maud, Monterey, Cal. Filed May 14, 1909. Serial No. 495,921.

A carburetter comprising a fuel chamber having an air passageway therethrough, a fuel jet connected with the chamber and arranged to discharge in the said air passageway, an air nozzle surrounding the fuel jet, a collar provided with air passages and supporting the nozzle in the before mentioned air passageway, said collar and air nozzle being longitudinally adjustable in the air passage and with respect to the fuel jet and a valve flange slidably mounted upon the nozzle and normally closing the air passages in the collar.

995,989. Spark Plug. Joseph E. Schaefer, Jr., Detroit, Mich. Filed July 28, 1910. Serial No. 574,239.

In a spark plug, a casing provided with a screw-thread at each end thereof and having a bore extending therethrough, the bore at one end being larger than the bore at the other end so that an annular shoulder is formed within said bore, an insulating member arranged in said bore and having an annular shoulder arranged to abut against the shoulder in said bore, said insulating member being also provided with a recess at each end and a curved annular shoulder on its exterior surface intermediate of its ends, a union adapted to slip over the outer end of said insulating member and having a screw-thread arranged to engage the thread on the adjacent end of the casing, said union having an annular angular shoulder on its inner surface arranged to register with the curved seat on the insulating member, a flexible washer arranged between said seat and said shoulder, a spindle arranged in said insulating member and extending beyond said insulating member at each end, the said ends being screw-threaded, a nut arranged on the outer end of said spindle, said nut having a reduced portion which extends down into the recess in the outer end of the insulating member and being also provided with a recess in its outer face, a ring arranged in said recess, a lock nut arranged over said ring, a disk arranged on the inner end of said spindle and a series of screws having conical shaped points mounted in said casing in the plane of said disk.

995,995. Shock Absorber for Vehicles. David E. Bennett, Rochester, N. Y., assignor of one-third to George W. Watters and two-thirds to Henry McGoughran, Rochester, N. Y. Filed Aug. 31, 1910. Serial No. 597,885.

1. A shock absorber comprising a fluid containing cylinder, a piston therein, a tube extending from one end of the cylinder to the other through a corresponding bore in the piston, said tube being provided at each end with one or more lateral openings, means for controlling the flow of fluid through said openings at one end of the tube, a lever arm, and means connecting said arm to the piston for imparting motion thereto.

996,017. Axiometer. Charles M. Haynes, Chillicothe, Ohio. Filed Nov. 3, 1910. Serial No. 590,417.

1. In an axiometer, the combination of a rotatable carrier, lens-holding mechanism mounted on the carrier, yielding actuating means associated with said mechanism to cause the same to engage the lens and bring the center of the lens into alignment with the axis of rotation of the car-

rier, manual means for actuating said mechanism to release the lens, a circular scale and an index associated with the carrier, and a target having a test-line in position to be observed through the lens and outside of the lens simultaneously.

996,035. Truck Side Frame. Albert O. Buckius, Jr., Chicago, Ill., assignor to The National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Original application filed Sept. 10, 1910, Serial No. 581,464. Divided and this application filed Nov. 9, 1910. Serial No. 591,483.

1. In a truck frame, a side member having overhanging end portions provided with journal box seats at the under side thereof, and a securing member extending longitudinally underneath the side frame and having its end portions secured in the overhanging portions of the truck frame, said members being adapted to engage the journal boxes and hold them to their seats; substantially as described.

996,048. Spring Tire Wheel. Richard M. Batzer, Albuquerque, N. Mex. Filed June 22, 1909. Serial No. 503,674.

The combination with a wheel having a rim provided with spaced threaded apertures, of a tread rim concentrically disposed with respect to the said first named rim, coiled retractile springs having straight alining ends, each spring being connected at its outer end to the said tread rim to lie flush with the outer face of the said rim and at its opposite inner end passed through the alining aperture in the wheel rim, bushings detachably threaded in the apertures and surrounding the inner ends of the said springs, the said bushings being held fixed when engaged in the rim, jam nuts adjustably connected with the inner ends of said springs and bearing upon the bushings whereby the wheel may be centered with respect to the tread rim, and means for preventing relative lateral movement of one rim to the other.

996,119. Automobile Sleigh. Lionel Norman, Brookline, Mass. Filed Nov. 18, 1904. Serial No. 233,243.

1. An automobile sleigh, having, in combination, a body, a source of power carried thereby, runners and wheels for supporting the body, and mechanism actuated by the source of power acting, under control of the operator, to move the runners out of and the wheels into, or the runners into and the wheels out of, operative position to support the sleigh.

996,120. Signaling Attachment for Speedometers. William J. Norton, Denver, Colo., assignor of one-half to Hamilton Armstrong, Denver, Colo. Filed Aug. 4, 1909. Serial No. 511,186.

1. In an apparatus of the class described, the combination with a speed indicating instrument including a dial having an arcuate, graduated scale, of an electric alarm, an element carrying two insulated arcuate contact plates in a circuit with said alarm, said element being movably mounted on said instrument with the two contact plates in concentric relation to said scale, means for adjusting the position of said element so that corresponding extremities of the contact plates at one end thereof may be brought in radial alinement with any graduation of said scale, a pointer pivotally mounted on said dial and a contact device associated with said pointer and adapted to simultaneously engage the two contact

plates so as to close the circuit in which they are located.

996,130. Automobile Heater. Clyde S. Pelton, Akron, Ohio. Filed Mar. 12, 1910. Serial No. 548,863.

1. The combination, with an engine exhaust pipe, of a radiator comprising a plurality of radiator units communicating with the exhaust pipe, an outlet pipe common to said units, the radiator units being so arranged as to provide a series of ducts of varying length interposed between the radiator inlet and outlet, whereby the impulses from the engine are broken up and discharged in substantially continuous stream through the outlet.

996,144. Tail Light and Traffic Signal for Automobiles. George A. Robinson and Frederick Grinham, St. Louis, Mo. Filed Jan. 23, 1911. Serial No. 604,018.

A tail light traffic signal for vehicles, comprising a brake-lever, a brake, a tail-light rotatably mounted in the rear of the vehicle, a pushing-and-pulling rod connecting the said tail light and the said brake lever by a yielding connection, a bracket

upon which said tail light is rotatably mounted, and stop pins projecting downwardly from said lamp to contact with said bracket and thereby limit the movement of the said tail light.

996,190. Hub Attaching Device. Earl S. Woodbury and George H. McKelvey, Augusta, Mont. Filed Feb. 17, 1910. Serial No. 544,442.

1. The combination with an axle and a vehicle wheel therefor, of a hub attaching device comprising a collar surrounding a portion of the hub, fastenings securing the collar to the hub, retaining means supported by the axle and engaging the collar to hold the wheel operatively associated with the axle, and spring gripping arms on the collar engaging the spokes of the wheel so that strain on the collar is in part transmitted to the spokes.

REISSUES.

13,260. Clutch. Charles Clayton Rich, Mount Vernon, N. Y., assignor to The Hydro-Kinetic Transmission Company, Mount Vernon, N. Y., a Corporation of

Maine. Filed May 6, 1911. Serial No. 625,557. Original No. 988,817, dated Apr. 4, 1911, Serial No. 573,569.

1. A clutch of the character described, comprising, in combination with drive and driven shafts, a rotor connected to the drive shaft, a rotor casing connected to the driven shaft and formed with inlet and outlet ports, and a shell casing inclosing and surrounding the rotor casing and embodying two parts, one of which is adapted to close said ports and the other of which is designed to establish communication between the ports, the shell casing having a longitudinally sliding movement on the driven shaft.



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NEW YORK

THE MOTOR WORLD

Vol. XXIX.

New York, U. S. A., Thursday, October 26, 1911.

No. 5

HUPP DECLARES HE WITHDREW

Tells His Side of the Story in Answering Hupp Company's Suit—Legal Proceedings Become Quite Tart.

Although in its suit to restrain R. C. Hupp and the Hupp Corporation from using the name "Hupp" in the automobile business the Hupp Motor Car Co., of Detroit, alleged that Hupp's connection with the Hupp company was terminated by the board of directors largely because of Hupp's undue activities in promoting his personal interests, Hupp, in his answer, which was filed in Detroit on Tuesday last, 24th inst., states that there was another reason. He states that he withdrew from the Hupp Motor Car Co. because in August last it decided to discontinue the manufacture of the "Little Hupmobile" runabout and concentrate on the larger and higher-priced touring car, and also because against his protests large dividends were declared instead of the money being applied to the building of a factory for the production of necessary parts.

In his answer Hupp claims that the Hupp Motor Car Co. was fully aware that the name "Hupp" would be used in designating the various companies organized by R. C. Hupp to make the Hupmobile and other parts, and that no objection was made to the use of the name "Hupp" until after he announced his new car, the "R. C. H."

Whereas the Hupp Motor Car Co. charged that Hupp's action was designed to trade on its reputation and to cause confusion, he retorts that the effort to prevent his use of the name "Hupp" in connection with the new car has as its object to lead the public to believe that R. C. Hupp is still identified with the Hupp Motor Car Co., "thereby preventing him from going before the public and stating the true facts of the case."

Hupp's answer calls attention to the differences between the R. C. H. and the Hup-

mobile and also directs the court's attention to the fact that Hupp now is advertising the R. C. H. car over his name as an individual and distinctly stating that he has no connection with the Hupp Motor Car Co., thus seeking to prevent confusion and to show that he is not seeking to profit by the prestige of the Hupp company.

No Tire Reductions Until January.

Reports that the price of tires would be reduced on November 1st have been set at rest by guarantees issued by the more prominent manufacturers that present prices will not be disturbed until the end of the year. At that time, however, it is quite generally believed that substantial reductions will be announced in sympathy with those which recently went into effect abroad.

Regal Representative to Girdle Globe.

R. M. Lockwood, manager of the Regal Motor Car Co.'s export department, sailed last week on what practically is a globe-girdling journey to extend the Royal's foreign interests. He will visit not only England and the principal continental countries, but will go to Egypt, India, Ceylon, China, Japan and the Philippines, returning by way of Honolulu and San Francisco.

Parker Assets Offered for Sale.

The Parker Motor Co., of Hartford, Conn., which some two months since made an assignment for the benefit of its creditors, has been unable to overcome its difficulties and, accordingly, its affairs will be liquidated. The assignee, J. C. Wilson, is offering the machinery, tools, patterns, unfinished motors and materials for sale at bargain prices.

Schlotterback to Make Motor Trucks.

The Schlotterback Mfg. Co., of East Orange, N. J., has leased a factory building at Fourth avenue and Ogden street for a term of five years and is preparing to engage in the manufacture of motor trucks. The building has a floor area of 40,000 square feet.

FOUR SUCCEEDS ONLY "ONE-LUNGER"

Long Island Company Finally Abandons Unusual Model and Makes Real Start —Florida Capital Assists.

After two years of unavailing effort to popularize a big "one-lunger" designed by Francois Richard, a Frenchman, and of a type which found at least a small measure of success in France, the Only Motor Car Co., of Port Jefferson, N. Y., finally has seen the light and henceforth will devote itself to the production of four-cylinder cars.

As a matter of detailed fact, the company had not gone very deeply into the production of its "one-lunger." It had one car which it exploited with a view of attracting capital, in road races and hill climbs, in various parts of the country and with extremely varying success, and according to reports it was the only car the company ever produced. It acquired a factory building in Port Jefferson, but the floor was never laid and until very recently it contained only pure Long Island air; no manufacturing machinery ever had been installed.

F. W. Edwardy, the prime mover in the company, persisted in his search for capital, however, and finally he found it away off in Florida. In April last he incorporated, under Delaware laws, the Only Motor Car Co., of New York, capitalized at \$500,000 and with himself, F. Seymour, of East Orange, N. J., and H. M. Dikeman, of Brooklyn, N. Y., as incorporators. A month later, also under Delaware laws, he incorporated the Southern Only Motor Car Co., of Jacksonville, Fla., capitalized at \$100,000, and with himself, C. N. Edwardy and D. O. Pons as incorporators.

With the capital thus obtained he was able to make some progress, and during last month he equipped the factory in Port Jefferson with the necessary machinery, and Richard having designed a four-cylinder

car, its manufacture now is being undertaken.

Like the more or less famous "one-lunger," which mounted an engine of remarkable dimensions, 5½-inch bore by 10-inch stroke, the four-cylinder model will also employ an engine of large proportions. It will have a bore of 4¼ inches and a stroke of 7½ inches, thus acquiring an A. L. A. M. rating of 30 horsepower, but there are expectations that it will develop nearer 90 horsepower. It will sell for \$1,000, and it is stated that the makers themselves will guarantee that it will attain a speed of 75 miles per hour.

Tire Men Discuss 1912 Trade Policies.

What is styled the "first trade policy meeting" held by the United States Tire Co. since its organization occurred at Hotel Astor in New York on Sunday last, 22nd inst. It was attended by all of the company's branch managers and salesmen in the Central and Eastern districts, to the number of 150. The meeting was presided over by J. D. Anderson, general sales manager, and was addressed by J. M. Gilbert, general manager, who made the principal address; A. I. Philp, manager of the Central District, and O. S. Tweedy, manager of the Eastern District, and William MacMahon, chairman of the Factory Committee. Trade policies for the coming year, and the plans for taking care of the country's tire demands were the high spots that were touched, and optimistically, too.

Penn Prepares To Go To Newcastle.

Bonds to the amount of \$150,000 having been subscribed by residents of Newcastle, Pa., the Penn Motor Car Co. has definitely contracted to remove from Pittsburg to Newcastle, instead of Sharon Pa., as was first reported. Nor has the company lost any time in making ready to begin operations in Newcastle, work having already been begun on its factory, which it is expected will be completed by January 1st. It will have an annual capacity of 6,000 Penn "30" cars.

Fire Damages Lawrence Wheel Factory.

Two drying sheds of the Archibald Wheel Co., Lawrence, Mass., were destroyed by fire on October 18th. The fire departments of several adjoining towns and villages after six hours' struggle succeeded in saving the main buildings. The sheds contained lumber and partially manufactured wheels valued at \$60,000.

Hupp Begins Work on Bigger Factory.

Having purchased the site of seven acres at Milwaukee and Mt. Elliott avenues in Detroit, the Hupp Motor Car Co. lost no time in breaking ground for its new factory, which already is under way. It will comprise three brick and steel buildings, viz: an assembly and paint shop, 400 x 70; motor assembly building, 200 x 70 feet,

and the stock building, 320 x 70 feet. There also will be a two-story office building of vitrified brick, 150 by 45 feet. The entire plant will afford approximately 125,000 square feet of floor space, which is about three times that available in the present factory. The capacity will be 15,000 to 20,000 Hupmobiles a year.

Changes Among Prominent Tradesmen.

F. V. Coville has been appointed buyer for the H. H. Franklin Mfg. Co., of Syracuse, N. Y. He succeeds W. G. Lindsey, who resigned.

Don C. McCord has been elected general manager of the Flanders Mfg. Co., of Pontiac, Mich., R. M. Brownson relinquishing that office but retaining the presidency of the company. McCord joined the Flanders establishment a few months since as manager of its newly-created electric car department.

M. H. Snyder has been appointed sales manager of the Day Utility Car Co., of Detroit. Until two weeks ago he was in the automobile business in Bozeman, Mont., and according to the story went to Detroit to obtain the Day agency and wound up by becoming the company's sales manager.

A. L. Dixon, manager of the General Vehicle Co.'s service department in Long Island City, has resigned that position and on November 1st will join the truck department of the Waverley Co. in Indianapolis. He has been succeeded by E. W. Gough, formerly assistant general manager of the Queens (L. I.) Electric Light & Power Co.

W. S. Hathaway, supervisor for the United States Motor Co. in the Western States, has retired from that office, and it is stated probably will remain out of business for a year or so. Hathaway, whose headquarters were in Kansas City, was widely known, having been, previous to his recent connection, identified with the Buick interests.

H. F. Donaldson has sold his interest in The Commercial Vehicle to the United Publishers Corporation, and has tendered his resignation as president and editor of that publication. Donaldson intends to join the S. A. E. party sailing for England November 1, and while abroad will investigate commercial vehicle conditions in Europe.

J. B. Morrow has been appointed manager of the Stromberg Motor Devices Co.'s Indianapolis branch, which just has been removed to new and more commodious quarters at 514 North Capitol avenue. Morrow succeeds Charles Kolbenstetter, who has returned to the Stromberg headquarters in Chicago, to which he will be attached as special traveling representative.

Gets Lower Duty on Goggle Glasses.

The Board of United States General Appraisers has sustained the contention of

the Motor Car Equipment Co., of New York, for a lower duty on disks for automobile goggles. They were returned by the Collector for the Port of New York as manufactures of glass, with a duty at the rate of 10 cents per dozen pairs and 45 per cent. ad valorem. According to the importers, the disks are in the category of "glass, ground," and as such entitled to enter at 1¾ cents per pound and 5 per cent. on the value. This claim is sustained and the Collector reversed.

S. A. E. Selects London Headquarters.

St. Ermins Hotel, St. James Park, London, S. W., has been selected as the official headquarters for the Society of Automobile Engineers during its forthcoming visit to London. The hotel is centrally located, near Westminster Abbey and the Houses of Parliament, and is connected by a private corridor to a subway station, from where trains run direct to Olympia, where the London show, which is the chief cause of the S. A. E.'s visit, will be held. The party will sail from New York November 1st.

Ohio to Establish Service Stations.

The Ohio Motor Car Co., of Cincinnati, is about to establish five factory service depots in as many parts of the country, at least one of which will be located in Dallas, Tex. These depots will carry a full stock of parts for the Ohio car and will be manned by mechanics direct from the factory.

Four More Join Credit Association.

The Alexander-Seewald Co., Atlanta, Ga.; Consolidated Lubricants Co., New York City; Gray-Hawley Mfg. Co., Detroit, Mich., and the Jackson-Church-Wilcox Co., Saginaw, Mich., have been admitted to membership in the Automobile Trade Credit Association.

Economy Formally Declared Bankrupt.

Having been formally adjudicated bankrupt, the first meeting of the creditors of the Economy Motor Car Co., of Joliet, Ill., has been called to occur in that city on Saturday next, 28th inst. At that time a trustee will be selected.

Auburn Locates "Six" Plant in Angola.

The Auburn Automobile Co., of Auburn, Ind., has established a branch factory in Angola in the same State. It will be devoted wholly to the production of the six-cylinder car which the Auburn company is adding to its line.

Disco Self-Starter Now in Detroit.

The Ignition Starter Co., which manufactures the Disco self-starter, has completed its removal from Grand Rapids, Mich., to Detroit. In the latter city it has established its office at 724 Ford Building.

RELIEVING STREATOR STRINGENCY

**Company's Creditors Favorably Inclined
and Settlement Likely Within Ten
Days—Bonds Offered Them.**

Efforts to relieve the Streator Motor Car Co., of Streator, Ill., from its embarrassment still are in progress, a meeting of its creditors which will occur Nov. 1st, having been called by the referee in bankruptcy, at which time any objections to the offer of settlement made by the company will be publicly aired.

It is believed that the offer will be accepted, creditors at the meeting held last week having requested the court to delay action in the bankruptcy matter until the creditors could pass on the offer which had been submitted.

At the same time these creditors asked that the business be continued as heretofore and that F. B. Wilkinson, A. O. Smith and W. H. Boys be constituted a creditors' committee to inquire into the nature of the securities furnished by J. C. Barlow and Paul R. Chubbuck, president and vice-president, respectively, of the embarrassed company; also that this committee be permitted to conduct the affairs of the company until other arrangements are effected.

Messrs. Barlow and Chubbuck are the owners of a large amount of real estate in Streator and vicinity and they propose to issue bonds against this property and give them to the creditors of the Streator Motor Car Co., thus serving to put that corporation practically out of debt by transferring the indebtedness to the shoulders of Barlow and Chubbuck, who will have from one to five years to pay it, under the terms of the bonds.

The schedules in bankruptcy, as finally filed by the company, placed the total assets at \$673,426.83, the largest items of which were stock and material on hand, \$211,302.28; plant and equipment, \$158,665.33; accounts and machinery on consignment, \$185,181.68; promissory notes and securities, \$101,734.35. The liabilities total \$341,282.79, of which \$291,927.70 represents unsecured claims.

Five Tire Thieves Are Rounded Up.

As a result of the arrest of five men last week, the New York police and the United States Tire Co. believe they have put a stop to the theft of tires which had attained a value of possibly \$20,000. The stealing had been systematically conducted and had continued for several months, most of the tires disappearing between the tire company's warehouse and its retail store in New York. Transfer slips were the means employed. They were made out by certain of the United States Tire Co.'s employees, but the tires, instead of being taken to the retail store, were delivered to

a distributing agency where they were disposed of at cut prices. The stealing first was discovered when the company's representatives sought to collect from persons whose names appeared on its books as purchasers, but who asserted that they had bought no tires. The five men who were arrested include three United States Tire Co. employees, who were charged with grand larceny, another man who was accused of receiving the stolen goods and a fifth who acted as a go-between.

Palmer-Singer Reduce "Six" and "Four."

Of the several front rank manufacturers of high-priced cars, the Palmer & Singer Mfg. Co., of New York City, is the first to lower its list. Early this week the company announced a reduction that affects its entire line, and that is a substantial one, amounting approximately to \$1,000 on all of its six-cylinder models.

The six-cylinder, 60-horsepower, seven-passenger car which heretofore has been catalogued at \$4,200 has been reduced to \$3,200, and the five-passenger car employing the same chassis from \$4,000 to \$3,000. Both have a $4\frac{7}{8} \times 5\frac{1}{2}$ -inch motor, four speeds forward, multiple disk clutch, 138-inch wheelbase and 36-inch wheels. The models using the P-S four-cylinder chassis are similarly affected, the four-cylinder, 50-horsepower car being marked down from \$3,500 to \$2,850.

No announcement of it yet has been made, but it is known that the P-S line will shortly be further increased by the addition of a "little six," which is now well under way, and which will sell for \$2,000.

Show That is Not Promoted by M. A. M.

Although several papers that ought to know better are carrying this in their list of fixtures: "January 10-17, Annual Show, Motor and Accessory Manufacturers, Madison Square Garden, New York," the M. A. M. are promoting no show of the sort and never have acted as show promoters. The dates January 10-17 are those of Part II of the Automobile Board of Trade's show, which will be constituted of commercial vehicles with accessories, as heretofore. M. A. M. members, as usual, will display the bulk of such wares during both weeks of the Board of Trade's function at the two other national exhibitions.

The Effect of "Knighting" the Stearns.

If ever the F. B. Stearns Co., of Cleveland, had even a lurking doubt when it decided to wholly cast out the poppet valve engine for the Knight slide-sleeve motor, that doubt has been quite effectively removed. Since the decision was made in July last the Stearns people report that they have booked more than four times as many orders as were received during a similar period of the company's history and that these orders represent a greater number than the total output of Stearns poppet valve cars during all of the year.

JAMES LINES UP THE TAXICABBERS

Twelve Hundred Enrolled in His Co-operative Purchasing Association—Plans Enlarged to Include a Cab.

Though it was expected that the International Motor Service Association would commence active operations on October 10, by which time its charter was to have been received and its officers elected, unforeseen complications arose, according to Charles C. James, who is the organizer and the moving spirit, and made necessary a postponement. The election of officers did not take place on October 10, for as a matter of fact it was not until the 23rd inst. that the application finally was forwarded. It is probable, therefore, that on November 1st the machinery of the association formally will be set in motion. Meanwhile, however, the growth of the movement has been not short of astounding and has attained strength that requires that it be no longer considered lightly.

As already has been told in the Motor World, the association is to be in effect an immense purchasing agency and will contract for the sale or distribution of such supplies as tires, spark plugs, tire chains, and gasoline and oil, as are in constant demand by its membership, which comprises taxicab and livery companies. Eventually an association taxicab, also, will be assembled and marketed and it is expected that it will become standard for service in all the larger cities, this latter being a development which was not included in the original plans.

The association was started with a nucleus of 10 New York rental and taxicab companies, viz: the Packard Renting Co., Peerless Rental Service, Renault Taxicab Co., Thomas Flyer Renting Co., Universal Taximeter Co., Interborough Taxicab Co., Imperial Taximeter Co., Crawford Taxicab Co., Broadway Taxi Operating Co., and the Nautilus Taxicab Co. From this beginning, a month since, it has grown with surprising rapidity, until at present, according to James himself, there are in round figures 1,220 members in the association, 800 of whom represent taxicab operating companies of various sizes throughout the United States. Proportionate to its size, each of the rental service and taxicab companies represented in the association owns a number of shares of stock in it, valued at \$10 each.

Owing to the immense amount of detail work necessary and to obviate the possibility of confusion resulting among the members provided, instructions regarding the whole gamut of supplies with which the association eventually will work were given at the one time, tires alone will be given attention first. The decision to attend to the tire question first is due to the

fact that tires are at once the most expensive and perishable accessories which are used.

Though originally it was intended to use the products of the United States Tire Co., negotiations which were perfected have been abandoned, and instead the Goodyear Tire & Rubber Co. and "one other large tire manufacturer" will supply the association demand. The modus operandi of the purchasing plan also has been changed slightly. Under the new arrangement members will not purchase supplies from local dealers, pay for them and receive from the association the difference between the price paid by the member and that quoted to the association, which was the original plan.

Instead, members will purchase supplies from local dealers and drive the best bargains they can, as heretofore. Duplicate receipted bills are to be sent to the association's New York office to serve as evidence to the manufacturer that a certain quantity of his goods has been sold to an association member. Based on the quantity of their products sold to members, certain manufacturers have agreed to allow the association a rebate. The rebates which are received will be pooled and will form the association's gross earnings. The net earnings will be distributed to the stockholders in the usual way.

Briefly, this is the plan under which members will purchase Goodyear tires and tubes and other supplies except spark plugs, which will be contracted for and sold to members direct by the association. The arrangement with "the other large tire manufacturer," whose name James would not divulge, will be entirely different. It is proposed that the association contract for a certain quantity of tires of the one size, 32 x 4, these to be delivered to the manufacturer's branch houses and dealers throughout the country and sold to members at a flat rate without the guarantee.

Regarding the production of the association cab, a number of well-known cab builders will be asked to bid on specifications covering a vehicle embracing the latest taxicab practice. Though reports have been current that the association cab would be a United States Motor product, they are emphatically denied by James, who says that the United States Motor Co.—with which until recently he was identified—has refused to build the cabs, stating as its reason that its shops are full and the business could not be handled.

Alco to Erect a Service Building.

The American Locomotive Co. is preparing to join the several prominent automobile companies who have erected service buildings in the Long Island City section of New York City. The Alco structure will be located on Jackson avenue, where a site 212 x 100 feet has been purchased for the purpose.



Lakeland, Mich.—Lakeland Motor Works, under Michigan laws, with \$10,000 capital; to manufacture and deal in motors and automobiles.

Missoula, Mont.—Garden City Garage Co., under Montana laws, with \$10,000 capital; to maintain a garage and deal in automobiles and accessories.

Kalamazoo, Mich.—Burdick Motor Transfer Co., under Michigan laws, with \$10,000 capital; to operate automobile livery and deal in motor vehicles.

Oskaloosa, Iowa—States Auto Supply Co., under Iowa laws, with \$50,000 capital, to manufacture and deal in automobiles. Corporators—D. P. McClure, C. W. Payne, A. O. Watland.

Linton, Ind.—The Linton Garage Co., under Indiana laws, with \$10,000 capital; to maintain a garage and deal in automobiles. Corporators—A. T. Custer, G. C. Porter, T. J. Holden.

Grand Rapids, Mich.—Michigan Auto Joint Co., under Michigan laws, with \$10,000 capital; to deal in and repair automobiles. Corporators—Charles E. Perkins, J. F. Carter, F. S. Perkins.

Montclair, N. J.—Frank A. Reeve Co., under New Jersey laws, with \$50,000 capital; to manufacture motor cars. Corporators—F. A. Reeve, J. A. Butler, Montclair; D. H. Slayback, Verona.

Vinita, Okla.—Vinita Automobile Co., under Oklahoma laws, with \$10,000 capital; to deal in automobiles and accessories. Corporators—Walter A. Cronan, M. R. Kapp, Mrs. M. R. Kapp.

New York City, N. Y.—Manhattan Top & Body Co., under New York laws, with \$50,000 capital; to manufacture automobile equipments. Corporators—G. B. Radford, H. Schuler, C. D. Heintze.

Evergreen, Ala.—Evergreen Motor Car Co., under Alabama laws, with \$2,000 capital, to deal in automobiles and maintain a garage. Corporators—C. P. Deming, E. W. Dunn, R. L. Whitcomb.

Boston, Mass.—Amplex Motor Car Co. of New England, under Massachusetts laws, with \$25,000 capital. Corporators—President and treasurer, I. B. Spafford, of Newton, Mass., and others.

St. Louis, Mo.—Lewis Sales Co., under Missouri laws, with \$2,500 capital; to deal in automobiles. Corporators—William J. Lewis, 23 shares; L. M. Lowrey and Harry A. Williamson, one share each.

Chicago, Ill.—C. W. Haas Tire Seal Co., under Illinois laws, with \$50,000 capital; to manufacture and deal in automobile tires

and rubber goods. Corporators—C. W. Haas, R. C. Uckens, E. C. May.

Elmira, N. Y.—The Heater-Muffler Co., under New York laws, with \$40,000 capital; to manufacture a muffler heater for automobiles. Corporators—Wilber Kenzie, Lanson D. Curran, Ansel G. Ingram.

Indianapolis, Ind.—Indiana Gas Engine Co., under Indiana laws, with \$25,000 capital; to manufacture gas engines. Corporators—G. G. Westerfield, I. W. Connaty, S. S. Brewer, Bernard Korbly, C. A. Korbly.

Albany, N. Y.—Kupke Garage Co., under New York laws; to deal in automobiles and maintain a garage. Corporators—Theodore Kupke, Eugenie Kupke, both of Albany; Willard W. McCune, of Watervliet.

Buffalo, N. Y.—Queen City Electric Automobile Co., under New York laws, with \$50,000 capital; to manufacture automobiles. Corporators—A. C. Towne, Kenmore; C. S. Chamberlain, M. T. Day, both of Buffalo.

St. Paul, Minn.—Northwestern Motor Supply Co., under Minnesota laws, with \$50,000 capital; to deal in automobiles and motor vehicles. Corporators—P. F. Daly, J. C. Stegmeier, E. A. Teureaud, Helen M. Daly, John Coates.

Cleveland, Ohio—Moore & Rigley Garage and Sales Co., under Ohio laws, with \$10,000 capital; to deal in automobiles and operate a garage. Corporators—William H. Moore, John Moore, A. V. Rigley, C. F. McGee, C. E. Alden.

Sacramento, Cal.—Sacramento Motor Sales Co., under California laws, with \$25,000 capital; to deal in automobiles and motor vehicles. Corporators—W. R. Gore, Fair Oakes; C. M. Wilson, S. R. Rodgers, both of Sacramento.

Portland, Me.—Gilson Auto Co., under Maine laws, with \$10,000 capital; to deal in automobiles, supplies and maintain a garage. Corporators—President, L. C. Gilson, Portland, Me.; treasurer, George D. Pastorius, Newcastle, Me.

Cleveland, Ohio.—Richardson-Neighbors Motor Co., under Ohio laws, with \$5,000 capital; to deal in automobiles, motors and motor vehicles. Corporators—F. E. Richardson, H. F. Neighbors, W. J. Dawley, Sidney Seidman, Stephen N. Young, Jr.

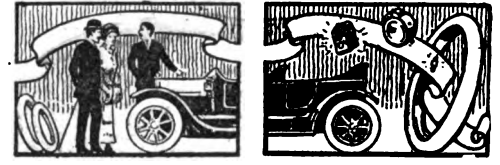
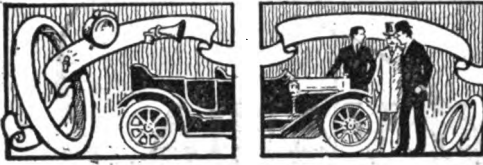
New York City, N. Y.—Fear Naught Co., under New York laws, with \$100,000 capital; to manufacture motors, machinery and vehicles of all kinds. Corporators—R. T. Hughes, Rutherford, N. J.; J. M. Davis, F. C. Munson, both of New York City.

Increases of Capital.

Louisville, Ky.—Clark Motor Car Co., from \$30,000 to \$60,000.

Racine, Wis.—Kelly-Racine Rubber Co., from \$500,000 to \$1,000,000.

Memphis, Tenn.—Noble S. Bruce Auto Co., from \$10,000 to \$50,000.



Charles Reed is building a two-story garage in Great Barrington, Mass.

Richard Hill is to be manager of a new garage which is being built in Coal City, Ill.

Albert Cutts has opened a garage in Wautoma, Wis. He will operate an automobile library and deal in used cars.

H. F. Wessel has broken ground for a garage on West Fifth street, St. Paul, Minn. It will be of brick and cost \$12,000.

John D. Webster & Co. have opened a garage and repair shop in Alexandria, Va., at the corner of Prince and Strand streets.

Andrew Bruno is building a two-story brick garage in Newark, N. J. It is located at 60 Marshall street and will cost \$9,000.

At a cost of \$18,000 J. Kaufman is building a four-story garage in New York City. It is located at the corner of Third avenue and 123rd street.

A three-story garage and salesroom is in course of construction at 538 North Main street, Decatur, Ill. It will be occupied by Leggett & Grant.

The Motor Car Co. is the style of a new concern which has opened salesrooms at 94 Massachusetts avenue, Boston, Mass. It is handling the Nance "Six."

John E. Boyle, proprietor of the Boyle pharmacy in Fairfield, Conn., has leased a building in the rear of the Hargrove School in which to establish a public garage.

Norman Devaux has been appointed Reo distributor for California, Arizona and Nevada. His headquarters are in San Francisco. A branch will be opened in Los Angeles.

Baker Bros., who operate a garage and salesroom in Buffalo, N. Y., under the style Baker Bros. Motor Car Co., have opened a branch in Geneva, N. Y. They handle the Cole line.

William N. Haa, a farmer of Vriesland, Mich., has sold his farm at auction and moved to Grand Rapids, where he will open a garage and salesroom for several low priced cars.

John F. Lynch, who formerly sold Stearns and Mora cars in Minnesota territory, has opened a salesroom at 441 St. Peter street, St. Paul, Minn. He will handle Kissel cars.

H. S. Knickerbocker, of Arlington, Mass., has entered the automobile business at Worcester, that State, where he will handle Cole cars. His headquarters are at the Norcross Garage.

At a cost of \$160,000 the Cadillac Automobile Co., of Chicago, Ill., is building a

five-story garage and service structure on the southeast corner of Michigan avenue and Twenty-third street.

Harry Spencer, who for some years has worked in one of the garages in Springfield, Mass., has gone into business on his own account. He has opened a garage and repair shop in Bridge street.

The Hexter Motor Truck Co., which has the distribution of Gramm trucks in Greater New York, is erecting a six-story service building at 155-159 Perry street. The structure will be 100 x 72 feet.

F. O. Calkins, who conducts a livery business in Wadena, Minn., has decided to forsake horses and woo the motor car. He therefore is remodeling his stables into a modern garage and machine shop.

Carl Christensen, who for some time past has had the Oakland (Cal.) agency for National cars, has purchased an interest in the Howard Automobile Co., of the same city. He takes the National agency with him.

The Cole Motor Co. of Wichita is the style of a new company which has been organized in the Kansas city of that name. Its salesrooms are at 315 East Douglas street and it will, of course, handle Cole cars.

C. K. Cramer, Taylor Allen and John Wallis have formed the Motor Car Repair Co., with headquarters at 409 Fifth street, Des Moines, Ia. All three men formerly were connected with the Sears Auto Co., of the same city.

The State Auto Co., of Indianapolis, Ind., has outgrown its present quarters and next week will move into the premises at 235 North Pennsylvania street, formerly occupied by the Gibson Co. It handles Marion and Krit cars.

W. E. Lahr, of the Lahr Motor Sales Co., Bismarck, N. D., has purchased the interest of his brother, F. A. Lahr, and assumed entire control of the company. F. A. Lahr has engaged in the real estate and loan business.

The American Locomotive Co., manufacturer of the Alco car, has opened a factory branch in Boston, Mass. George Hudson, formerly of the Hudson-Colby Co., is manager of the establishment, which is located at 567 Boylston street.

The Donaldsonville Garage & Automobile Supply Co., which was incorporated last month with \$10,000 capital, in the Louisiana town of that name, has opened a garage and salesroom in the Lemann Annex. James P. Kock is the president and A. A. Sassadet the secretary.

Reed & Gage, who for two years have been selling Ford cars and conducting a garage on North Main street, Janesville, Wis., have decided to retire from business. The garage will not be closed immediately, but will be managed by Lane until the affairs of the firm are wound up.

The McCarty-Parker Automobile Co., which was formed several months since to handle White cars in Los Angeles, Cal., has dissolved and discontinued. E. K. Parker retired from the company soon after its organization and now Walter McCarty has decided that he has had enough and has shut up shop.

W. A. Crowe, W. A. Crowe, Jr., H. A. Crowe and C. G. W. Wernicke, hardware and implement dealers of Minneonta, Minn., have formed the Marion Motor Car Co. and opened salesrooms at 1027 Hennepin avenue, Minneapolis. They have the Marion distributing agency for Minnesota, North Dakota and part of Wisconsin.

The Ideal Garage Co., which recently was formed in Frederick, Md., has taken over the business of the Frederick City Garage, and John H. Grove, proprietor of the latter, will be manager of the merged concerns. The new company will handle E-M-F, Flanders, Buick, Everitt, Dart gasoline cars and one or two lines of heavy commercial trucks. Its headquarters are at 114 East Patrick street.

Adolph J. Munich, one of the partners in the White-Munich Motor Car Co., of New Orleans, La., has petitioned the court to restrain his partner, Harry A. White, from withdrawing \$1,240 from a bank in which the funds of the company are kept. The co-partnership was to have ended on August 1, last, but during the absence of Munich from the city, White is said to have taken possession of all the papers belonging to the firm and to have left the city. The petition furthermore asks for the appointment of a liquidator to take charge of the assets of the company and to wind up its affairs.

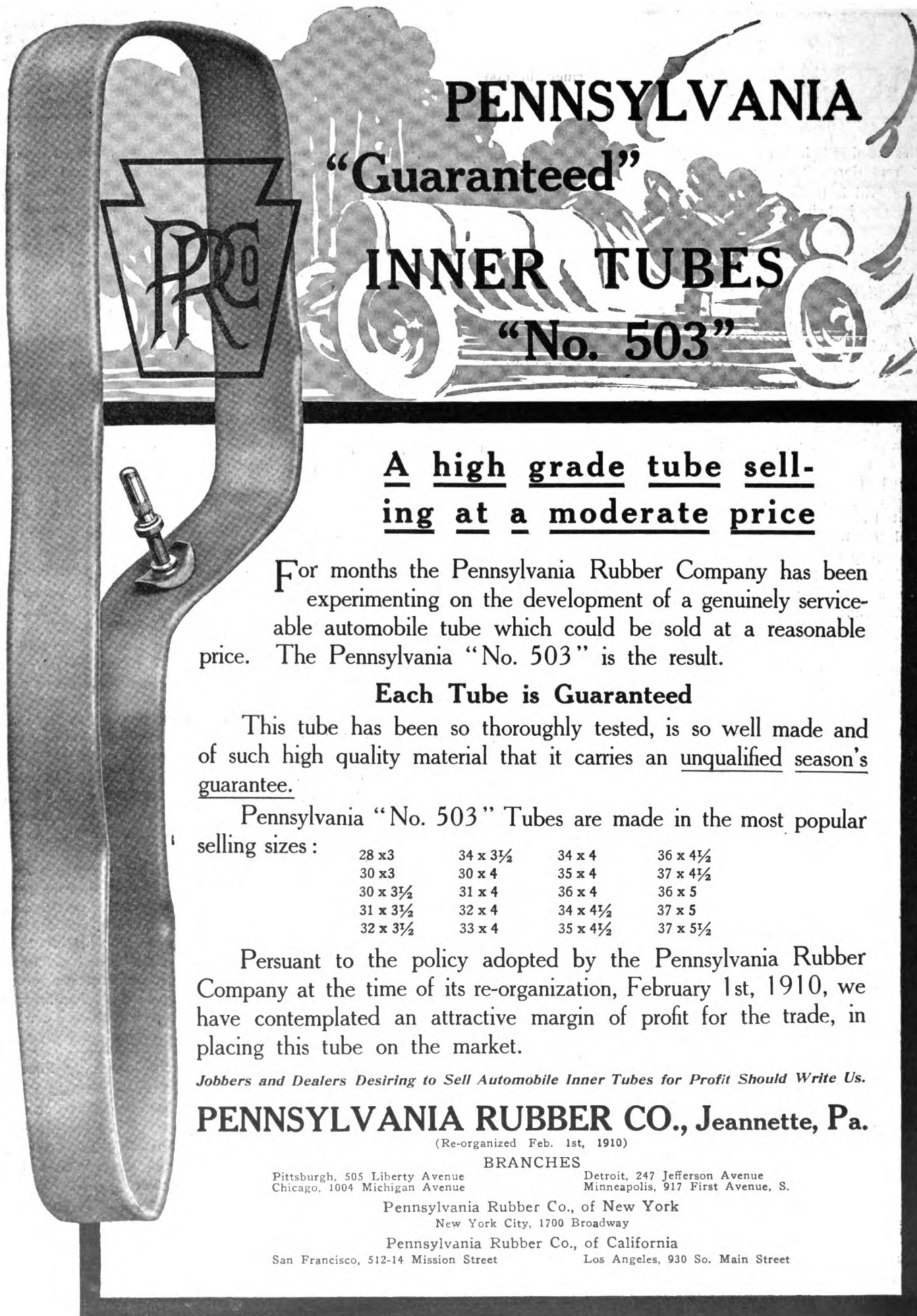
Recent Losses by Fire.

Lawrence, Mass.—Archibald Wheel Co.'s drying sheds and contents burned. Loss, \$60,000.

Frankford, Pa.—William Clarke & Son's garage and two automobiles destroyed. Loss, about \$3,000.

Dorchester, Mass.—Joseph P. Morse's garage, 43 Greenwood street, and one car burned. Loss, \$3,500.

New York City—Acton Garage, 137 West 89th street, damaged and two cars burned; 100 others saved. Loss, \$5,000.



PENNSYLVANIA
"Guaranteed"
INNER TUBES
"No. 503"

**A high grade tube sell-
ing at a moderate price**

For months the Pennsylvania Rubber Company has been experimenting on the development of a genuinely serviceable automobile tube which could be sold at a reasonable price. The Pennsylvania "No. 503" is the result.

Each Tube is Guaranteed

This tube has been so thoroughly tested, is so well made and of such high quality material that it carries an unqualified season's guarantee.

Pennsylvania "No. 503" Tubes are made in the most popular selling sizes:

28 x 3	34 x 3½	34 x 4	36 x 4½
30 x 3	30 x 4	35 x 4	37 x 4½
30 x 3½	31 x 4	36 x 4	36 x 5
31 x 3½	32 x 4	34 x 4½	37 x 5
32 x 3½	33 x 4	35 x 4½	37 x 5½

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PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

A. B. SWETLAND.....President
F. V. CLARK.....Secretary-Treasurer
R. G. BETTS.....Managing Editor
154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) . . . 10 Cents
Foreign and Canadian Subscriptions . . . \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, OCTOBER 26, 1911.

Samuel M. Butler.

Many men have succumbed because of participation in sport, and some of the glory of the gladiator has been theirs. But it has been given to few men to die actually in the service of it—in the cause of the administration of laws which are not a part of the statutes of the land. Samuel M. Butler is one of what truly may be termed the precious few who thus have died. He met his death literally in the service of his chosen sport. Let the fact be not overlooked or forgotten. None but those who have experienced it can conceive what the administration of the laws of sport entails, and usually the burden is self-imposed and is borne with small recognition and smaller gratitude. When the attempt is made, as in motoring, to cause to mix such opposing elements as trade and sport, the burden is doubly great—the position of the man who attempts to carry it is doubly trying. It was that trying office which

Samuel Butler filled and filled well, with credit to himself and to the sport and the conflicting interests which he served. He performed the task with rare judgment and he performed it modestly, capably and without vainglory. He played a man's part in a modern and modernizing movement, and he played it well; he assisted in its advancement. He deserves to be gratefully remembered by all who had to do with it. His deeds will live after him, but his death is not less a misfortune. His work had not been wholly done.

Wherein Truck Contests Fall Short.

Equally evident after a perusal of the revised results of the San Francisco truck contest are the ridiculousness of continuing such performances in the name of sport and under the regulations framed for the guidance of a purely sports-governing body, and the utter uselessness of the conclusions reached in the name of scores. The circumstances that the services of an expert accountant were required in order to straighten out the mathematical tangle in which the system served to involve the luckless promoters of the affair merely add to the mirth-provoking quality of the outcome. To be declared the winner of such a contest is something less an honor than it seems.

Need for revision of the score, as first announced, was realized when it was found that a mistake had been made in reckoning the drivers' wages. Thereupon the professional calculator to whom the task was entrusted proceeded to "raise the pay" of all the operators, even doubling that of some. At the same time someone discovered that a gallon has eight pints, instead of two, as the technical committee evidently believed, and that all cost figures of oil had been calculated four times too high. The outcome was a complete revision of the results.

Not only that, but by retaining the peculiar system of reducing the technical penalties to points per mile of travel it happened that no less than five vehicles with absolutely no road or technical penalties against them received higher final costs, or "scores," than others which had suffered to some extent, or even broken down, on the road. Yet, in the estimation of the average business man, whom the affair was supposed to instruct, delays by the roadside, or break-downs, would be considered far more serious than would high fuel costs.

That in several instances cars which were not declared winners in their class actually evidenced lower fuel and oil costs than the winners but adds to the peculiarity of the logic which deems such results in any sense—other than satirical—an educational demonstration.

Plainly the truck rules of the American Automobile Association are in need of revision. If such a method of scoring is to be preserved, the A. A. A. must enter the labor unions and fix the wage scale of truck drivers for all time. Otherwise a crafty competitor might enter a heavily laden truck with a boy driver at a boy's wage and fairly run away with the honors. Not only that, but it must standardize the cost of fuel and oil for all contests, otherwise results obtained in different competitions and in different localities in no sense will be comparable; they cannot be accounted "records." Opinion is still divided as to the ultimate good truck contests can do the industry, and likewise as to the quality of the interest which they attract, but whether they are to be a permanent form of sport or whether they are to drop from sight altogether depends rather more on the success or failure of efforts to put them on an equable and intelligent basis.

The Passenger as a "Look-out."

The refusal of the Supreme Court of the United States to review the Pennsylvania decision which held that the passenger occupying the front seat of an automobile was guilty of contributory negligence because he failed to warn the driver of an impending accident is regrettable. The approval of such a precedent which thus may be implied seems to add unfairly to the motorist's already large burden, and the precedent is a mischievous one. It practically requires that the front-seat passenger constitute himself a lookout, but it is extremely questionable that his services in that capacity will serve the public welfare. Few drivers there are who will not agree that nothing is more irritating and distracting or better calculated to keep a driver's nerves on edge than oft-repeated warnings to "look out" for the one thing or another which may loom ahead. There is enough of that sort of thing without its being imposed by law. Anything that distracts a driver's attention from his work or that startles him scarcely can be considered as making for greater safety for the passengers or the man in the street.

CHAIRMAN BUTLER'S TRAGIC END

Killed by Overturning of Car While Leading Glidden Tour Through Georgia—His Notable and Useful Career.

For the second time since it was inaugurated, eight years ago. Death entered the Glidden tour yesterday morning, 25th inst., and cut down the man who had most to do with it, Samuel M. Butler, chairman of the Contest Board of the American Automobile Association, who, because of his high office, stood more prominently before the public than any other man connected with either the sport or the trade.

Butler's death was tragic and came so suddenly that he never spoke a word after the car in which he was riding overturned, near Tifton, Ga., and crushed out his life. It was the official pace-making car, a Cunningham, and besides Butler conveyed E. J. Walker, referee of the contest, who is chairman also of the California State Automobile Association, and Mrs. Walker, the latter of whom suffered a dislocated shoulder. Mr. Walker escaped with a broken collarbone.

The car was leading the cavalcade at a high rate of speed when, apparently, its steering gear jammed, causing it to skid in the sand, run off the road and overturn in the ditch. It skidded for perhaps fifty yards and the occupants were aware that they were in peril, but as the top was up they had no opportunity to jump or otherwise make their escape. The chauffeur alone, Charles F. Kellman, escaped injury. The others were pinned under the car, Butler being thrown under the left rear wheel. He was badly crushed and never uttered a word after the accident.

Butler's body was carried to Atlanta, and from that place was shipped, via Pennsylvania Railroad, to New York, where it is due to arrive tomorrow (Friday), at 12:40 P. M.

Samuel McKnight Butler was born in Camden, N. J., December 30, 1866, and, therefore, was in his forty fifth year at the time of his death. He first came into prominence as secretary of the Automobile Club of America, previously having been an advertising man on a New York automobile publication. He served the A. C. A. for some ten years and as one of its delegates at the meeting for organization he was one of the founders of the American Automobile Association. He also was one of the organizers and the first secretary of the Aero Club of America, which was formed within the A. C. A. He left that club two years ago to become chairman of the contest board of the national organization, an exceptionally trying position, which he filled with rare ability. He performed his work without fuss or fireworks and without seeking the limelight. He

was at all times self-contained and displayed splendid judgment and tact in overcoming the many difficulties which his office entailed. He served in the Spanish war as a member of the signal corps.

He resided in Brooklyn, N. Y., where he is survived by his wife, two daughters and a son. In deference to the wishes of his widow, his funeral probably will be a private one.

Company to Insure Automobiles Only.

The Automobile Insurance Co. of America is being organized in St. Louis and will apply for a charter as a Missouri corporation. It proposes to insure automobiles only and to issue a policy covering in a single contract all lines of indemnity in connection with an automobile. Its rates will be based on a combination of the rates at present used by other companies in writing policies which provide, in two or more contracts, indemnity against loss by fire or theft, collision, property damage and liability for injury to other persons. The company plans to have a capital stock of \$250,000, with \$50,000 surplus, its stock to be sold at \$125 a share. The organizers expect to start business about November 15, and the company, it is planned, will enter a number of States at once. Charles W. Disbrow, a prominent figure in St. Louis insurance circles, will be president. With him will be associated several other experienced insurance men.

Farmer Loses "Millions" in "Auto Water."

According to Raymond W. French, an Adams County (Ind.) farmer, Colonel Seller's eye water had nothing on the "non-freezing auto water" which Frank de la Claire, a chemist, figuratively poured out before his astonished gaze. The millions that were in it, as pictured by the chemist, made the Seller's eye water appear a mere drop in the bucket. French saw so many millions that he was persuaded even to sell his farm and to invest the proceeds, \$3,300, in Le Claire's famous water, which was to pay such large returns, and which, of course, was designed to prevent the freezing of water in the radiators of automobiles during the winter months. When convinced that he had been swindled the deluded farmer had the chemist arrested and charged that the chemist had appropriated the \$3,300 to his own use. The pitiful story came out at the trial in South Bend last week.

Illuminating the Door Step at Night.

One of the conceits of the 1912 Alco car is an electric bulb concealed beneath the tonneau door, which lights automatically when the door opens. It is designed to illuminate the step and assist the passengers in alighting after nightfall. So far as known it is the first gasoline car to be so equipped, the Waverley electric being the only other automobile to employ a light in such a place and for such a purpose.



October 31, Shreveport, La.—Shreveport Automobile Club's racemeet.

November 1, Waco, Texas—Racemeet under auspices Waco Automobile Club.

November 2-4, Philadelphia, Pa.—Reliability contest under auspices Quaker City Motor Club.

November 3-4, Columbia, S. C.—Automobile Club of Columbia's racemeet.

November 3-4, Columbia, S. C.—Automobile Club of Columbia's track racemeet.

Nov. 3-11, London, England—Society of Motor Manufacturers' and Traders' annual show in Olympia Hall.

November 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

November 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

November 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

November 13, Harrisburg, Pa.—Economy tests under auspices Motor Club of Harrisburg.

November 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

November 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

November 30, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

January 2-10, New York City, N. Y.—Importers' salon at Hotel Astor.

January 6-13, New York City—Automobile Board of Trade's 12th annual show in Madison Square Garden. Pleasure vehicles only.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual national show in New Grand Central palace. Pleasure and commercial vehicles.

January 15-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden. Commercial vehicles only.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

January 22-27, Providence, R. I.—Rhode Island Licensed Automobile Dealers' Association's show in the State Armory.

January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association annual show at Wayne Garden.

Glidden Contest Near to Its Destination

Scattered Ranks Close Up After Wallowing in Virginia Mud and Find Good Roads and Enthusiasm Further South—Tarrytown-Maxwell Team Still Retains Clean Score and Seems Sure of Victory—Chairman Butler's Sudden Death Saddens the Tour.

Live Oak, Fla., Oct. 25—With but one day more of running, nine teams remain in the contest for the Glidden trophy, the Tarrytown-Maxwell trio still retaining its premier position with a perfect score. The day was a sad one because of the untimely

testants for the Anderson trophy. No. 22 Thomas was the car to suffer, a shortage of gasoline causing lateness at control.

The sand that was predicted was encountered today, and for the biggest part of the 149 miles it was a hard plug over primitive

New York on the 14th there were only 53 that checked out from here this morning; the others are scattered over the roads somewhere between Staunton, Va., and Winston-Salem, N. C., where last night was spent. Rain, mud and hills, to say nothing of the occasional spots of deep sand, are responsible for the non-appearance of these cars. Yesterday's near-rout will not be soon forgotten. The wonder is that so many surmounted the hardships and that the scattered ranks closed up so well.

What to-day's run did develop was that there are counties in the State of North Carolina which are spending money lavishly for road improvement, and spending it intelligently, too. The counties of Guilford, Davidson, Rowan and Mecklenburg, through which led to-day's trip of 130-odd miles, have a most excellent road system. There was hardly a bit of bad going in the district, and the cars easily were able to cover 91 miles before reaching the noon control, and there was a "joy ride" in the afternoon over the Mecklenburg roads.

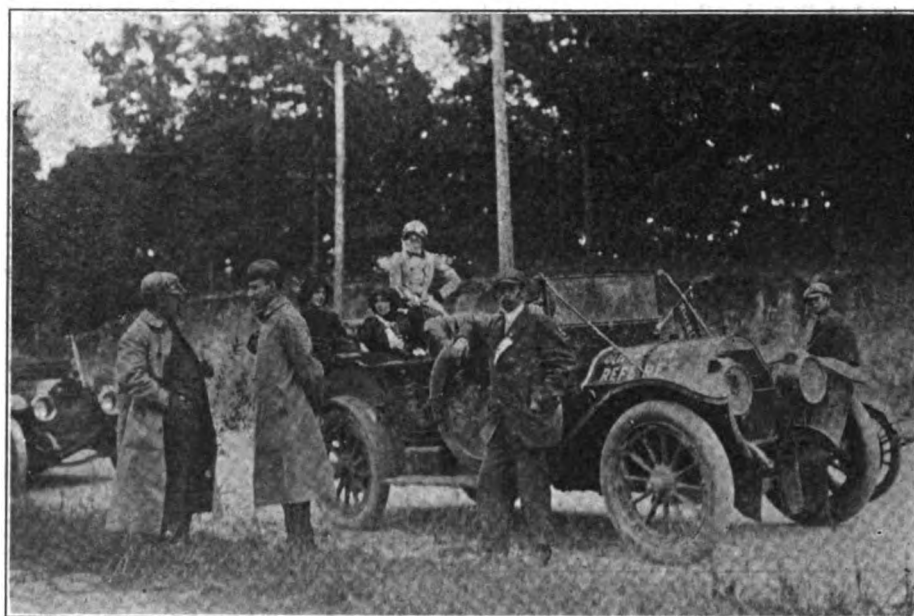
It was therefore an almost featureless day from the competition point of view. This sort of day leaves very little to describe, and it is likely that the others will be like it until the bad lands are reached.

Governor Smith of Georgia has left the tour because official duties at Atlanta necessitated his making greater haste than the rules of the tour will permit. His daughters, Mrs. Ranson and Miss Lucy Hoke Smith, are, however, still with us.

Seven withdrawals from the tour were announced to-day, and as a result six of the 18 teams competing for the Glidden trophy are out of the running. The teams still "in the ring" and their scores are as follows:

Team.	Score.
Tarrytown	Perfect
Atlanta No. 2	19
Jacksonville	23
Cordele	112
Atlanta No. 3	125
Everglades	208
Florida	244
Live Oak	265
Nashville	478
Detroit	1,028
Atlanta No. 1	1,125
Atlanta No. 5	Unknown

The teams that are out are the Atlanta Journal, Atlanta Nos. 4, 6 and 7, Albany,



CHAIRMAN BUTLER (CONTEST COMMITTEE), CHAIRMAN BATCHELDER (EXECUTIVE COMMITTEE) AND REFEREE WALKER HALTED NEAR ATLANTA

death of Samuel M. Butler, who was riding in the Cunningham pace-making car when its steering gear became deranged and the car dropped into a deep hole by the side of the road. Butler was killed instantly, but the others who were in the car escaped without serious injuries. P. J. Walker, referee of the tour, and his wife were in the car at the time. Walker sustained a broken collar-bone and his wife's shoulder was dislocated. The driver escaped practically unhurt. The accident occurred a short distance from Tifton, Ga.

Robert P. Hooper, president of the A. A. A., and A. G. Batchelder, chairman of the Executive Committee, assumed charge of the tour after Butler's death.

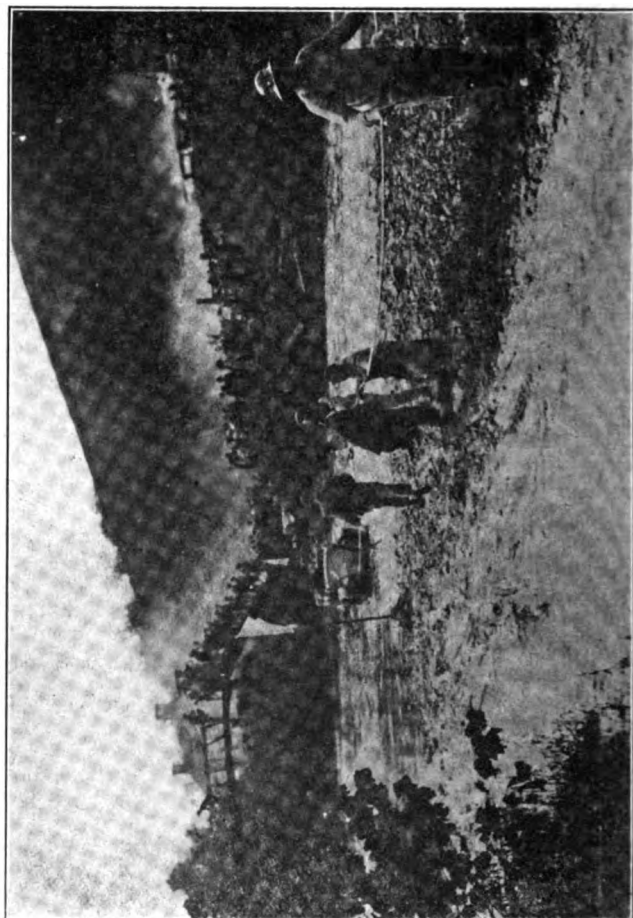
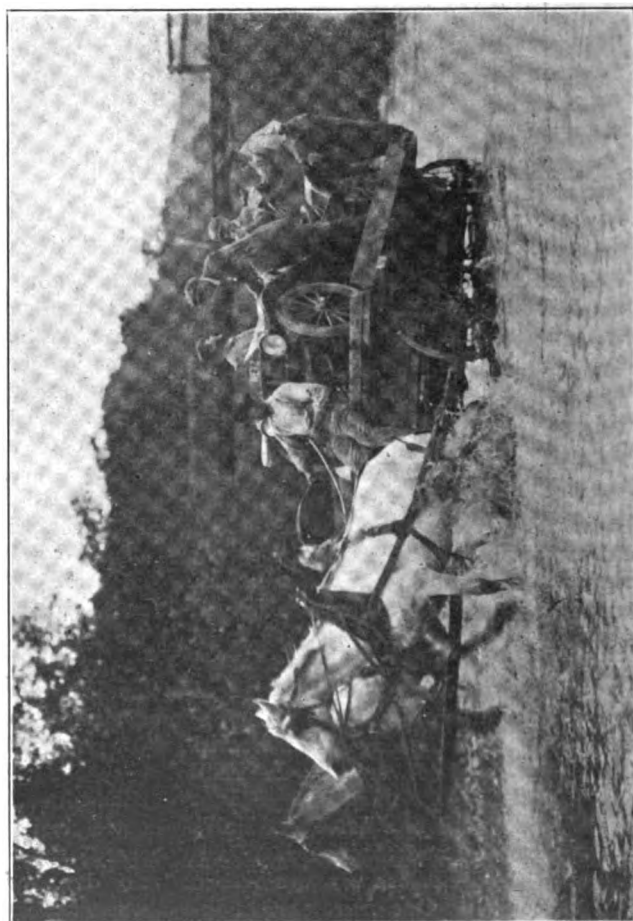
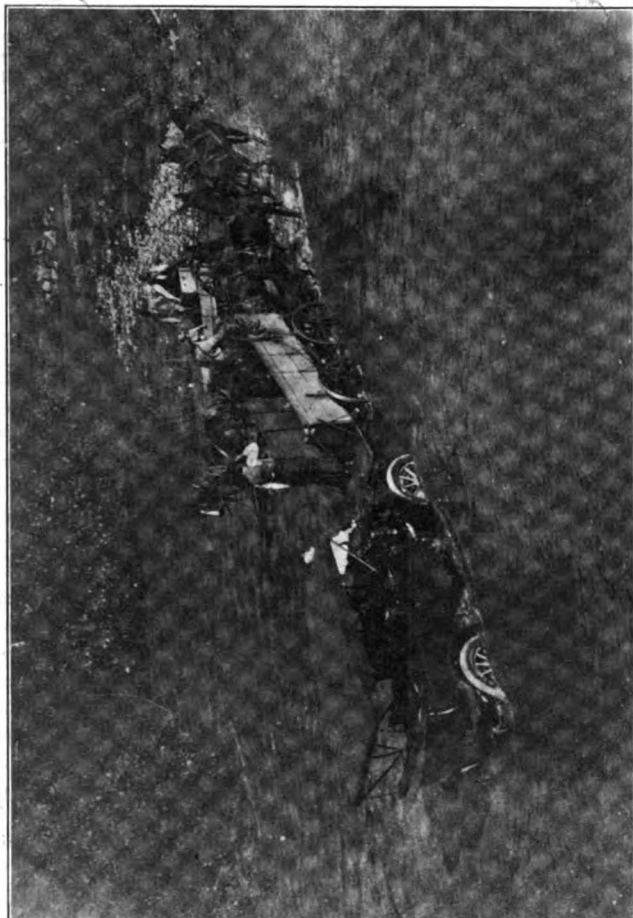
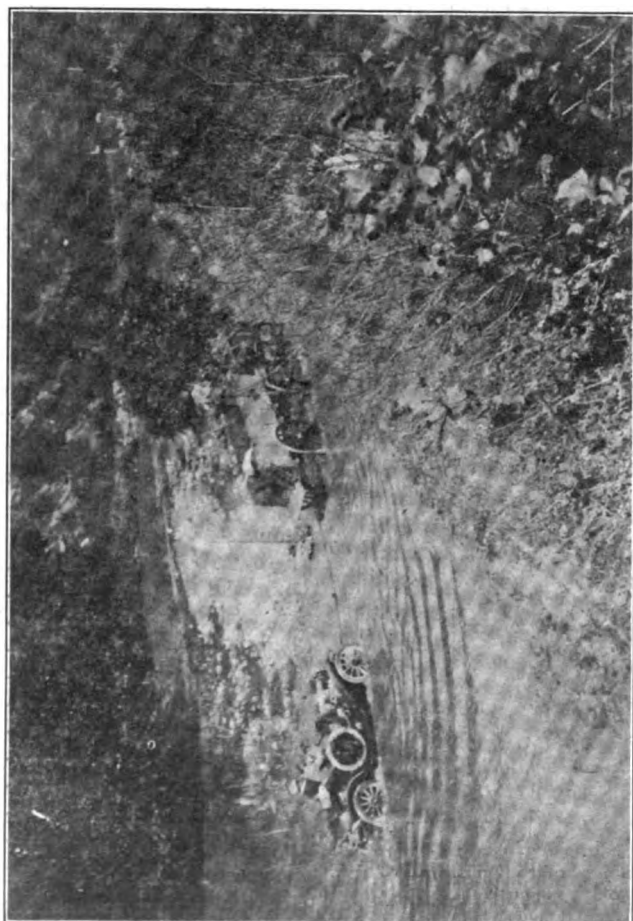
The tenseness of the day was increased by an altercation between R. S. Hall, driver of Cadillac No. 39, and Starter E. L. Ferguson, that ended in a fist fight. Hall's car was disqualified and this put the Florida team, in which the car was competing, out of the contest. One more perfect individual score was spoiled, leaving 14 con-

roads. For the first 70 miles the route led through a wilderness with nothing to relieve the monotony except an occasional turpentine camp. On the run from Cordele to Valdosta the cars were not checked but were allowed to make their own time. From Valdosta, which was the noon stop, to this place, however, regular checking proceedings were inaugurated again. Many of the cars did not get in till after dark.

Tomorrow is the last day of the tour and there are those who are not in the least sorry. From this place to Jacksonville it is just 85 miles, the shortest day's run so far, and it is expected that team standings and individual scores will not be altered on the comparatively easy run over good roads.

Charlotte, N. C., Oct. 19.—As far as the contest end of the Glidden tour was concerned, this—the sixth day—was a very easy day, and as such was a great relief from what has been going on for the last two days. Of the 74 cars that started from

HOW SOME OF THE GLIDDEN CARS CROSSED THE TREACHEROUS FORD NEAR MARTINSVILLE, VA.



Ga., and Waltham, Mass. The individual entrants who have withdrawn are James R. Gray, Thomas; B. M. Grant, Marmon; Wm. D. Alexander, White; Metz Co., Metz; Griffeth Implement Co., Schacht; D. P. De Berry, Hallady, and C. A. McCardle, E-M-F.

The entrants whose cars retain perfect individual scores and thus remain in the hunt for the Anderson trophy are: United States Motor Co., three Maxwells; Governor Hoke Smith, Maxwell; Claude Nolan, Cadillac; H. P. McNeil, Cadillac; R. S. King, Cadillac; Crawford Wheatley, Stevens-Duryea; E. M. Willingham, Ford; I. O. Teasley, Ford; Inman Gray, American; J. Epps Brown, Thomas; Athens Motor Car Co., Columbia; Studebaker Corp., Flanders; I. M. Powell, Oldsmobile; Winston-Salem Board of Trade, Mitchell.

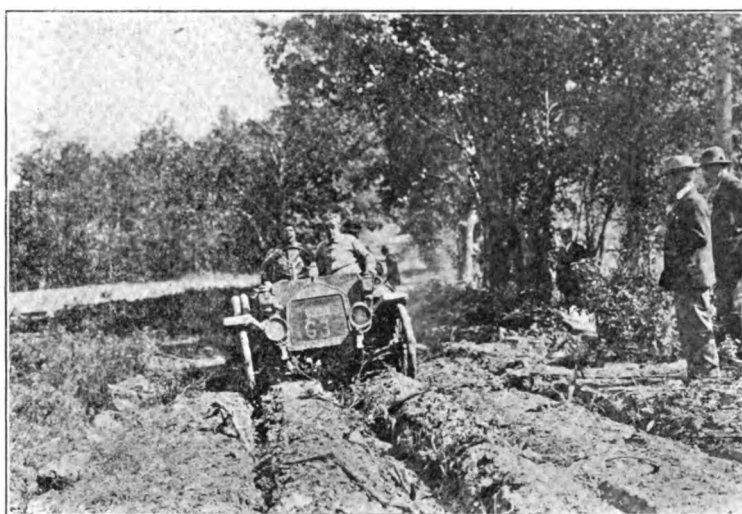
will improve the roads in Virginia. Otherwise there is a long stretch of such formidable going that few tourists will care to undertake the trying journey.

Although there was nothing but straight touring for a distance of 160 miles over roads that presented no features of difficulty, three cars were penalized. One of these, Oldsmobile No. 60, was set back 39 points, which affected the team made up of three of these cars so that it dropped back to fifth place. The Ford team moved up to fourth place. The Oldsmobile penalty now amounts to 151 points. The Maxwell Tarrytown team retains its clean score for the Glidden trophy, and as there are only four days of travel left, with only one hard one in prospect, it is likely that it will stay in the lead. The other penalizations

make of it a novelty. This little machine has come through after many perils and difficulties. The very bad stretch in the hills delayed it long, but it struggled through eventually.

Though very little has been said about the work that has been done by the Reo and Federal baggage trucks, it has been none the less remarkable. Every day they reach the night controls on time, though it almost was expected that in view of the morasses through which the tour led they never would get through. These trucks have earned their praise.

Atlanta, Ga., Oct. 21.—The Glidden tourists were given an enthusiastic welcome at this city. At Buckhead, which is six miles from here and is where the competing cars



NOT ALL THE SOUTHERN ROADS ARE VILE—WITNESS THESE CONTRASTS

Anderson, S. C., Oct. 20.—This town, which is famous for having been the last home of the Confederate States Mint and Treasury, received the Glidden tourists to-day with no counterfeit welcome. About the only drawback to the reception was the fact that this is a place of about 18,000 inhabitants, and therefore the hotel accommodations couldn't assimilate the 250 souls on the Glidden tour. Perhaps the fact that the proprietor put a car in the tour had something to do with the selection of the place. At that, the meals are a lot better and not more expensive than those which were had at the last night stop, which was in Charlotte.

The run to-day was a comparatively easy one, through part of the northwest corner of the State of South Carolina. It gave an opportunity to compare the roads of this State with those of North Carolina, with the advantage somewhat in favor of the Tarheels, it may be added. The roads here are of sand-clay and graded, but not finished off as well as are the North Carolina highways. Either State, however, has it "all over" Virginia for roads. It is clear that if the National Highway, so called, is to be a real road from North to South there will have to be done something that

to-day did not affect any team or other standing.

This city has another claim to fame in that its Chamber of Commerce offered the Anderson trophy, to be given to that owner whose car makes the best individual showing on the tour.

One feature that appealed particularly to the tourists was the alertness and activity in the cities passed through. Spartanburg, Greenville, Blacksburg and this place all have the appearance of active manufacturing towns. There are cotton mills now building and others which look new, indicating that fresh capital is coming into the district.

The tour is a source of great amusement to the negroes along the line, and they in turn amuse the tourists quite as much. A sort of holiday has been declared wherever the tour goes, and little cotton has been picked since the cars entered the cotton belt. All those who live on the line of the tour hurrah for the cars as they whizz by and exhort the drivers to "hit it up," because they have the idea—shared, too, by some of the drivers—that this is a road race and not a tour.

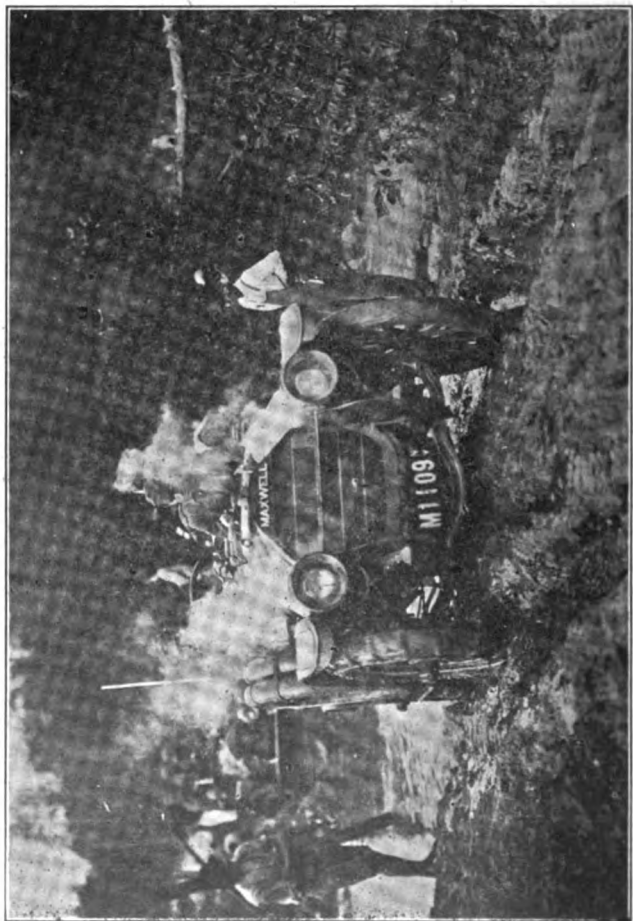
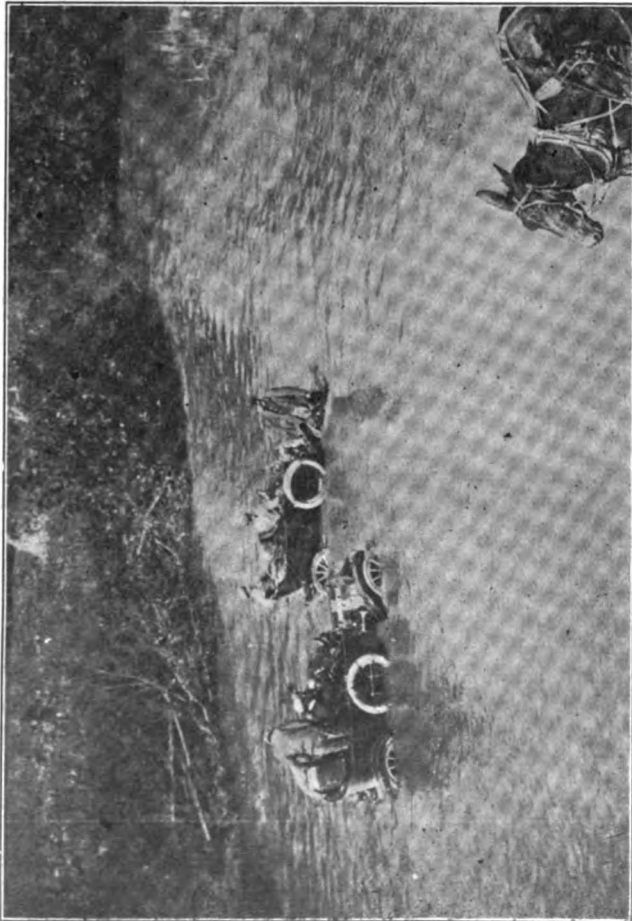
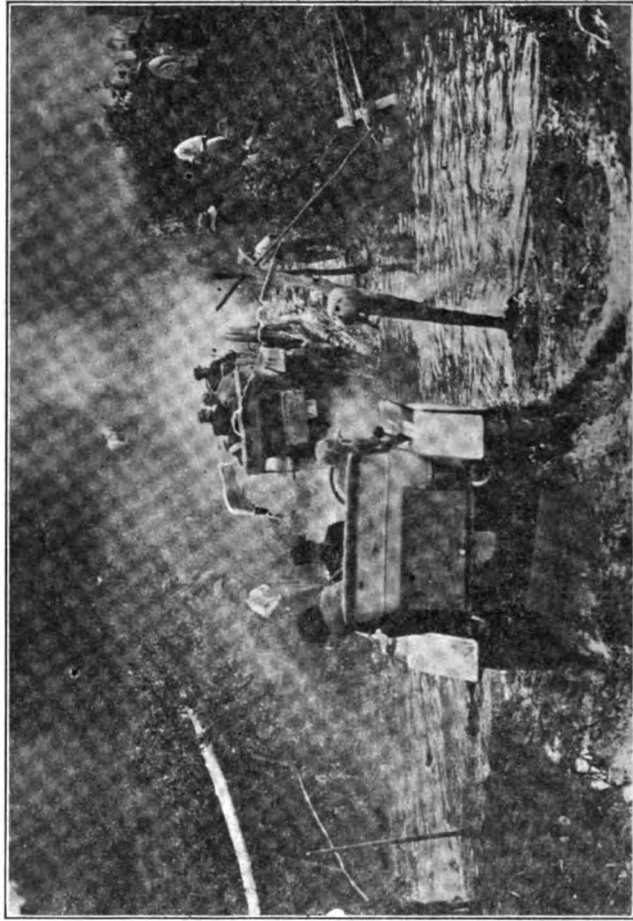
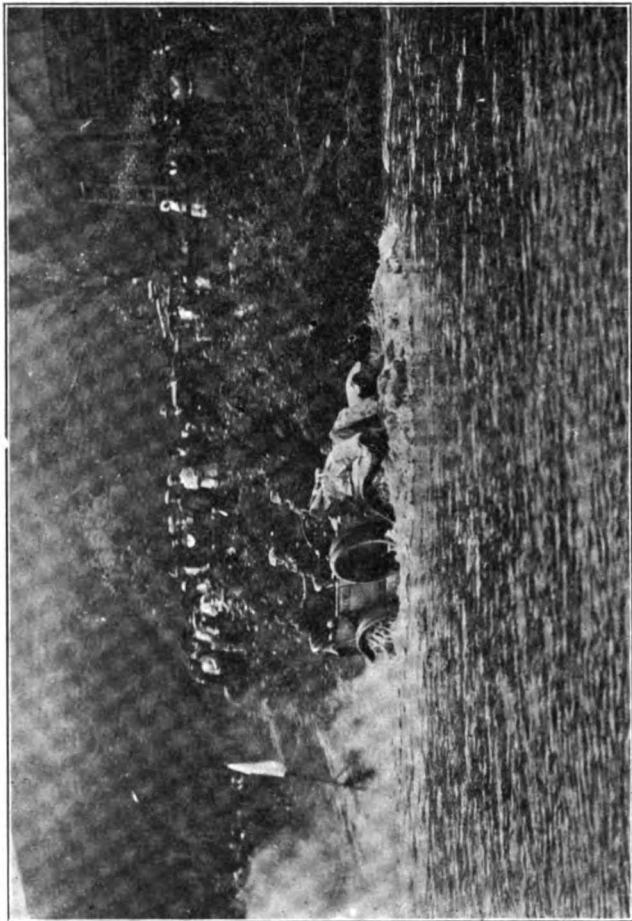
A car that interests many is the Motor-ette, because it is small and its three wheels

checked in, local motorists formed in a big parade and escorted the Gliddenites to the city. Two whole days will be spent here and the tired tourists will rest and be entertained, if such things can be said to go together. Anything that isn't automobiling will be a grateful change after what has been gone through in the last few days. Poor hotels and the many miles of bad roads that have been encountered make the prospect of a sojourn at a real hotel, and no touring, alluring to say the least.

The day's run was from Anderson to this place, with the noon stop at Commerce, a distance of 144 miles. At Commerce a barbecue was given in honor of the Glidden party. There, too, the tourists were met by the advance guard of the Atlanta reception committee. A large blue badge to identify Gliddenites was given to each person in the tour and cards of admission to a dozen clubs in the city also were presented.

At a dinner this evening at the Piedmont Driving Club, Governor Hoke Smith spoke and said that when he got to the United States Senate he would urge that the Government build a road through the Virginia region where such bad roads were encountered. President Hooper of the A. A. A.

SOME OF THE PICTURESQUE BUT STRENUOUS STRUGGLES OF THE GLIDDEN TOUR





WAYSIDE MEETING OF THE PRESENT AND THE PAST

gave the guests something to cheer for when he said he would recommend that the Glidden tour in 1912 come down this way again. P. J. Walker, the Californian who is referee of the tour, said he was glad he came, even though there were folks in the tour who wouldn't speak to him now.

There are but 10 teams now left competing for the Glidden trophy, two more having been disqualified by the withdrawal of one car from each. These two are the Cordele team and the Atlanta team No. 5.

Atlanta, Ga., Oct. 22.—With nothing to bother their minds, Glidden tourists to-day got a much-needed rest—the first real rest they have had since they left New York eight days ago. They were literally overwhelmed with the hospitality of the citizens of Atlanta. A great many of the Gliddenites hail from this city, and that they are proud of their home city goes without saying. As a result nothing is too good for those other tourists who, in the estimation of Atlanta's citizens, are unfortunate enough to live elsewhere. Already regrets are heard that the schedule does not permit a stop-over here on Tuesday as well as to-morrow (Monday).

Atlanta, Ga., Oct. 23.—To-day was really the first day that the Gliddenites have had a chance to enjoy the simon-pure hospitality of the citizens of this place. Yesterday being Sunday, entertainment was necessarily curtailed, but to-day the town was thrown wide open.

The chief feature of the entertainment consisted of a genuine barbecue, with roast pig, Brunswick stew and all the other delectable dainties that are part and parcel of a sure enough Southern shin-dig. The barbecue was attended in the afternoon, the motorists having practically owned the city all morning. In the evening theater parties

were the order of proceeding, the Gliddenites returning late to pack away glad rags and lay out their "working" clothes in preparation for the 167-mile run to Cordele to-morrow.

Harrowing tales of roads in which the sand is of awful depth have been going the rounds, but far from discouraging the tourists they have had almost the reverse effect. The enforced two days' rest has made everybody anxious to get out on the road again, and even those who suffered most on the Virginia roads are eager to be on their way. Sharp at 8 o'clock in the morning the checking out process will be started again and the procession will start on the last leg but two of the journey.

Cordele, Ga., Oct. 24.—The expected bad roads, predicted by the know-it-alls yesterday, did not materialize, and the run from Atlanta over 167 miles of excellent roads was one of the most enjoyable of the tour. Despite the good road conditions, however, and the very much slower schedule that was maintained, several penalizations were recorded, though in no case was the general standing of the teams competing for the Glidden trophy affected nor were any clean-score cars competing for the Anderson trophy blemished.

The White car entered and driven by Julian Howard for the city of Jacksonville met with an accident and was withdrawn. The crew arrived here to-night, having come in by train. John Keiley withdrew his Haynes and the Case car entered by the Greensboro Chamber of Commerce was assessed nine points on account of tire trouble.

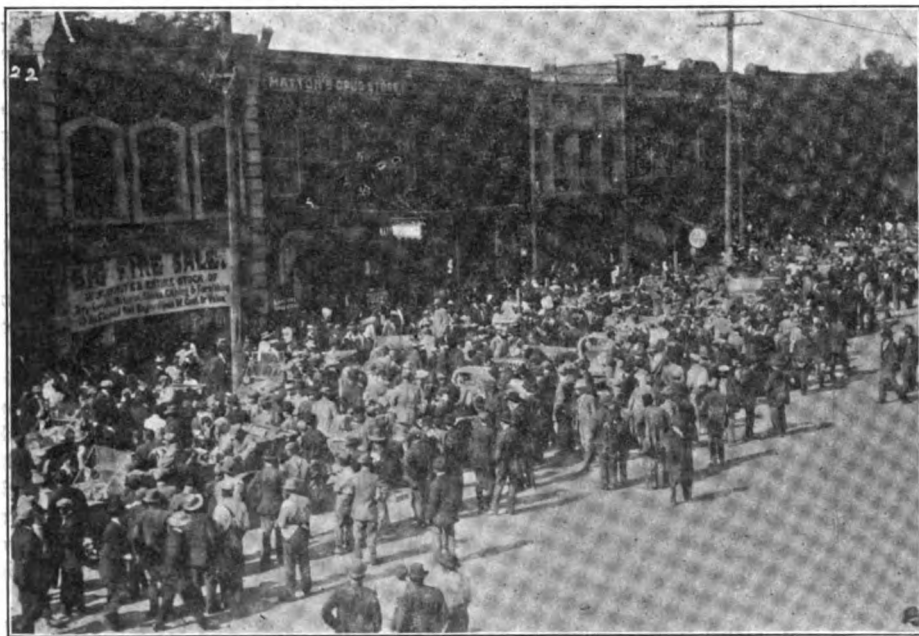
Tire troubles were rather more numerous to-day than on any other single day of the tour. Practically every car made at least one stop because of the fact, though little time was lost by the majority on this account. The Chalmers "six" press car, which up to this time had come through without a tire change, made its first stop to-day to have a shoe replaced.

At Griffen, one of the smaller cities through which the tourists passed, almost the entire population had turned out, though it was not discovered till afterwards that the real reason for the gathering was the presence of a circus in town. But the natives turned their attention from the circus long enough to wave the Gliddenites a welcome and urge them to greater speed.

The two days' stop which was made at Atlanta was regretted when it came time to go to bed to-night, for the motorists had



IN THE HEART OF THE MOUNTAINS OF THE SOUTH



INTEREST IN THE TOUR RAN HIGH IN HIGH POINT, N. C.

learned of the comforts of real hotels during their stay there and almost had to camp out at this place to-night. Four or five in a single room was common, and baths could not be had for love or money. But the majority of the Gliddenites are near-veterans and are accustomed to roughing it. Little protest was heard regarding what Cordele had to offer.

During the day's run there was one accident, the Metz car driven by L. Cathcart hitting a bump in the road with rather too much force and turning over. No one was hurt and the car reached control on time.

Denver Abandons Most Ambitious Contest.

Although the Denver Motor Club, of Denver, Colo., had received the sanction

of the Contest Board, A. A. A., to hold an ambitious reliability tour, covering a distance of 2,149 miles, from Denver to New York City, October 24th to November 7th, the plans have been abandoned. It is stated that the project probably will be lived in the spring. Fifteen entries had been received when the affair was called off.

Two Days' Sport in Sioux City.

With excellent weather, large crowds and prompt work, the events constituting the three days' racemeet held on the mile dirt course at Woodland Park, near Sioux City, Ia., Friday, Saturday and Sunday, October 20th, 21st and 22nd, proved up to anticipations. The meet was promoted by the

Sioux City Automobile Club, with the co-operation of the Inter-State Live Stock Fair Association, the owners of Woodland Park. The races had been announced for the 20th and 21st inst. only, but at the last moment, on account of the interest of merchants who donated prizes, Secretary Reid wired the Contest Board of the A. A. A. and received permission to extend the meeting over Sunday.

Of all the thrills—and there were many—the 50-mile free-for-all on Saturday proved the most exciting. It was a battle of tires as well as machines, for with a recent sad tragedy in mind the officials took no chances with doubtful tires. Twelve entrants were away at the drop of the flag, and for more than 30 miles there was small choice, although John Sparling, a Buick, was leading most of the time. The pace, however, proved too much for his tires, and at the 37th mile he was ordered to the pit to replace them. He did so, but when he got going again he was unable to make up lost ground. During the next few miles eight other contestants were motioned to the pit for tire changes, and the stops put them out of the race. Harry Wetmore (Chalmers) proved the winner. W. Marvel (Abbott-Detroit) was second by a few lengths, with John Sparling (Buick) third and Wess Shrunk (Paige) fourth.

On account of the death of William Pearce, the star of the Colby team, who was killed during a practice trial two days before the opening, the set program was disarranged, as all of the Colby entries were withdrawn. The summary:

Friday, October 20.

Ten miles, Class C, 161-230 inches displacement—Won by J. W. Shrunk (Paige); second, Walter Gnehm (Reo); third, J. Ralston (Ford). Time, 10:12.

Australian pursuit, Class D, free-for-all—Won by Phil Wells (Moon); second, John Sparling (Buick).

Ten miles, Class C, 301-450 inches displacement—Won by John Sparling (Buick); second, Harry Woodruff (Jackson); third, E. J. Delaney (Cutting).

Twenty-five miles, free-for-all—Won by John Sparling (Buick); second, J. W. Shrunk (Paige); third, Phil Wells (Moon); fourth, H. A. Wetmore (Chalmers). Time, 25:27.

Saturday, October 21.

Ten miles, Class C, 161-230 inches displacement—Won by J. W. Shrunk (Paige); second, H. A. Wetmore (Chalmers); third, Walter Gnehm (Reo). Time, 11:04.

Ten miles, Class C, 301-450 inches displacement—Won by John Sparling (Buick); second, Fred Young (Jackson); third, Phil Wells (Moon). Time, 10:17.

Fifty miles, free-for-all—Won by Harry Wetmore (Chalmers); second, W. Marvel (Abbott-Detroit); third, John Sparling (Buick); fourth, J. W. Shrunk (Paige). Time, 56:57.



GLIDDEN TOURISTS ON THE OUTSKIRTS OF ANDERSON, S. C.

REMARKABLE EFFECTS OF REVISION

Untangling of San Francisco Muddle Causes Perfect Score Trucks to Lose Awards—Peculiarities Involved.

Having undertaken to revise the official figures in the San Francisco Examiner's economy and reliability test for commercial motor vehicles, which occurred October 4-5, the technical committee, aided by a firm of expert accountants, has prepared a new table of performances, which gives the first declared standing of competitors a severe shaking up and changes the prize winners in several of the divisions. The revision was made necessary by the discovery of several glaring errors in calculation and also included the establishment of a totally different schedule of wages for the drivers of the various trucks. No change, however, has been made in the formula according to which the work of the vehicles was rated, the inconsistency of which was pointed out in last week's Motor World.

The arithmetical errors consisted chiefly of the assumption that a gallon has only two pints—the cost of the oil supply used by each car therefore being four times too large. As this cost, however, was wrongly calculated for all the cars, it would not have made much difference in the classification of the winners. The main issue centered around the drivers' wages, which in the first "official" table ranged from \$2 to \$6 per day, according to no particular schedule. In the new table drivers of wagons carrying less than 1,000 pounds are credited with receiving \$2 per day; from 1,001 to 1,500 pounds, \$2.50 per day; from 1,501 to 3,000 pounds, \$3 per day, and over 3,001 pounds, \$4 per day. Other changes in the table include a reduction of penalties, particularly in the case of the Franklin No. 6, which had its penalty of 2,800 points cut down to 4 points. Where it ever got the enormous penalty is not discernible from the itemized list of penalizations.

The revised figures still are based on the formula which appears to have been invented for this contest, although the official announcement accompanying the publication of the revised figures distinctly states that the formula used is the same as that employed in the endurance and economy test held in Chicago last August. This formula consists of dividing the penalties by ten, and adding the quotient to the cost per ton mile. In San Francisco, however, the penalties, divided by ten, were added to the total cost and then divided by the mileage, bringing the cost of penalization to a very low point. One of the peculiar results of using the San Francisco formula is that in three of the divisions perfect score trucks did not win the

first prize, simply because their gasoline and oil consumption was slightly larger than that of the declared winners, which had earned demerits. The most remarkable instance of this sort is evidenced in Division 3K, in which the No. 24 Reo was declared the winner. Despite the fact that the Reo used $1\frac{3}{4}$ gallons of gasoline and $4\frac{1}{2}$ pints of oil more than the White, and that it was penalized 86 points while the White had a perfect score—despite these facts the Reo won, while the White received last place.

The appended table gives the original figures, the revised figures, and also the figures which the trucks would have earned had the results actually been based on the formula employed in the Chicago test, the latter being calculated by the Motor World on the basis of the "revised" figures.

Division 1K			
Name	Original Figures	Revised Figures	Chicago Formula
7—Brush*†	\$.01815	\$.01660	\$.02526
26—Indian	.3336	.2968	.2968
Division 3K			
24—Reo*	.0973	.0809	.1660
1—White	.0987	.0869	.0869
8—Buick†	.0988	.0861	.0861
Division 4K			
20—Grabowsky	.1189	.0812	.1011
6—Franklin*†	.1194	.0795	.0835
Division 5K			
4—White	.0554	.0537	.0537
22—Autocar*†	.0557	.0507	.0507
3—Federal	.0803	.0847	.6306
Division 8K			
21—Kelly	.0390	.0388	.0448
9—White	.0396	.0376	.0696
28—Packard†	.0427	.0369	.0369
11—Reliance*	.0405	.0358	.0497
13—Gramm	.0435	.0400	.0400
18—Pope-Hartf'd	.0577	.0429	.1327
Division 9K			
19—White*†	.0231	.0223	.0223
23—White	.0231	.0230	.0230
17—Pierce-Arrow	.0243	.0233	.0233
14—Speedwell	.0268	.0271	.0271
10—Lewis	.0306	.0298	.0797

* Denotes winners according to revised figures.

† Denotes winners according to Chicago formula.

Illinois Association Re-elects Williford.

A. J. Williford, of Nokomis, Ill., will continue to lead the Illinois State Automobile Association for another year. At the annual election of officers, held last week in Chicago, he was re-elected president. The other officers are: First vice-president, W. P. Graham, Rochelle; second vice-president, J. B. McGuire, East St. Louis; third vice-president, Arthur Ware, Hillsboro; secretary and treasurer, Henry Paulman, Chicago; directors, Dr. H. A. Gunther and C. G. Sinsabaugh, Chicago Motor Club; R. J. Ton, Roseland; R. B. Roggeveeb, Blue Island; C. G. Miller, Cairo; C. H. Lockhart, Witt; T. M. Beatty, Quincy; X. E. Miller, Spring Valley; H. Vredenburg, Springfield; W. D. Snow, Bloomington.

HOW HERRICK AVERAGED 74.93 MILES

The Story of How, at Santa Monica, He Wiped Out Nazzaro's Long Standing Record—Huge Crowd Saw the Four Races.

It was over a very dusty course that automobiles speeded in the annual Santa Monica road races on the 14th inst. Last year, it may be remembered, the events were run off on Thanksgiving Day and Teddy Tetzlaff and his Lozier gave Californians and others a new American road record to be thankful for. Now Westerners have still more to be thankful for and to crow over; they can point to a new world's record made right at home on the same old Santa Monica circuit that always has given promise of being the scene of just such a coup. Harvey Herrick, who is a Californian who seldom, if ever, gets much further East than the boundary line of his home State, "owns" the new world's mark; it stands at 74.93 miles an hour and was made with a National car, as briefly was stated last week.

Herrick's win was not unlike Tetzlaff's of a year ago. Tetzlaff was an unknown quantity till after he annexed the big prize for last year's heavy car race over the same course and then went right back and after a 20-minute rest walked off with the free-for-all prize money. Herrick, too, was almost as unknown when he lined up with the other national characters, for about the only good work he previously had done was the winning of the last Los Angeles to Phoenix desert race—a feat by no means to be sniffed at. But he is well known now and his name and his achievement will be graven on the record books of automobile sport.

Weather conditions were ideal—California has a record for perfectly sublime weather that it would be hard to beat anywhere. The sky was flawless and the sun shone brilliantly, though none too ardently. Like other big road events that are started almost before sun-up, the occasion was an all-night affair for a big percentage of the estimated 200,000 spectators who eventually lined the course. On the Friday night preceding the big day thousands and thousands of motorists chugged their way to the seaside circuit, and long before the morning sun had chased away the light haze campfires were going everywhere and sleepy spectators crawled out of curtained-in touring cars, runabouts, motor trucks and limousines and stretched their legs.

By the time the so-called heavy, medium and light car races (301-450 inches, 231-300 inches and under 231 inches displacement, respectively) were put on—the two former events at about nine o'clock—the grandstand showed a very fair sprinkling of spectators; but it was not until a little more

Official Time-Table View of the Four Road R

FREE-FOR

Driver and Car	1	2	3	4	5	6	7	8	9	10	11
Harvey Herrick, National.....	11:32.70	18:14.40	24:56.39	31:95.50	38:22.55	45:04.55	51:47.15	58:25.50	1:05:04.63	1:11:48.00	1:18:22.00
Cyrus Patschke, Marmon.....	11:33.80	18:00.00	25:25.10	30:19.14	37:15.25	45:21.80	52:18.85	58:48.90	1:05:27.86	1:12:05.23	1:18:44.00
Joe Dawson, Marmon.....	8:24.69	15:13.61	21:59.12	28:35.47	35:14.39	42:05.25	48:51.00	55:29.83	1:02:11.20	1:08:53.70	1:15:33.00
Chas. Merz, National.....	9:07.87	15:58.70	22:51.20	29:49.50	36:44.70	43:40.30	50:32.90	57:21.42	1:04:09.65	1:10:57.51	1:17:44.00
Bert Dingley, Pope-Hartford.....	7:26.94	14:09.00	20:46.18	27:30.25	34:13.25	41:02.50	47:51.56	54:44.35	1:01:37.10	1:08:26.00	1:16:11.00
H. Wilcox, National.....	6:28.77	12:39.85	19:02.31	25:32.25	32:08.40	38:42.95	45:14.00	51:42.50	1:00:16.88	1:07:03.17	1:13:11.00
Dave Lewis, Stutz.....	10:35.84	17:55.10	25:06.60	32:24.00	39:40.71	46:53.25	54:08.10	1:01:21.65	1:08:32.71	1:15:45.30	1:23:00.00
J. Nikrent, Marmon.....	12:57.44	20:41.40	27:47.20	34:53.99	41:59.80	49:01.35	56:08.50	1:03:18.11	1:10:28.50	1:17:40.37	1:24:50.00
H. Hanshue, Mercer.....	11:44.00	19:12.65	26:46.00	34:19.80	41:54.29	49:02.25	1:00:54.28	1:08:51.22	1:16:15.35	1:23:35.36	1:30:50.00
T. Tetzlaff, Fiat.....	9:48.00	15:57.36	22:06.53	29:27.04	35:44.00	41:52.00	48:02.15	54:11.30	1:00:28.25	1:14:34.85	1:20:50.00
Wm. Endicott, Inter-State.....	8:12.62	15:05.51	23:03.20	Out—ran into fence.							
Tom Dubey, Midland.....	Engine trouble in first lap.										

NON-STOCK—301-450 CUBIC INCHES PISTON DISPLA

Driver and Car	1	2	3	4	5	6	7	8	9
Charles Merz, National.....	7:33.52	14:16.51	20:59.60	27:40.45	34:21.45	41:07.45	47:48.55	54:29.35	1:02:22.00
Bert Dingley, Pope-Hartford.....	6:49.62	13:24.31	19:59.80	26:37.95	33:11.90	39:51.25	46:38.80	53:19.45	1:01:54.70
Dave Lewis, Stutz.....	8:17.92	15:14.70	22:05.25	28:57.10	35:48.30	42:41.85	49:34.85	56:25.30	1:03:12.70
Harvey Herrick, National.....	8:26.10	15:19.18	21:45.40	28:31.80	35:24.45	42:17.35	49:10.35	56:03.35	1:04:15.50

NON-STOCK—231-300 CUBIC INCHES PISTON DISPL

Bruce Keene, Marmon.....	12:43.63	19:56.90	27:06.10	34:18.40	41:31.10	48:56.00	56:08.60	1:02:21.95	1:10:48.9
Joe Nikrent, Marmon.....	11:15.60	18:33.35	25:50.50	33:05.20	40:24.80	47:43.25	55:01.80	1:01:02.50	1:10:32.0
Harris Hanshue, Mercer.....	9:45.85	17:10.65	24:42.15	32:11.40	39:40.85	47:10.20	54:38.50	1:02:05.50	1:09:27.7
Louis Nikrent, Buick.....	14:40.40	21:49.50	29:11.55	36:25.00	43:59.25	51:14.65	58:32.35	1:05:50.50	1:13:09.4
Charles Bigelow, Lexington.....	11:29.27	20:17.70	29:07.75	37:44.60	46:26.00	55:13.30	1:03:58.75	1:11:20.25	1:20:51.1
John Jenkins, Cole.....	11:56.27	20:50.65	29:34.75	38:28.55	47:19.55	55:37.50	1:03:05.90	1:11:58.00	1:19:57.7
Clarence McKeague, Durocar.....	12:51.65	20:45.25	28:38.40	37:36.10	45:29.15	53:20.75	1:01:08.50	1:09:09.30	1:17:01.6
R. Jeffkins, Schacht.....	14:58.54	23:02.55	30:53.35	38:51.65	1:02:11.75	1:10:13.45	1:18:01.40	1:25:48.75	1:33:36.3
Frank Siefert, Cole.....	14:09.86	28:10.30	36:39.40	45:36.65	53:22.60	1:01:42.75	1:10:01.25	1:18:15.50	1:26:51.5

NON-STOCK—UNDER 231 CUBIC INCHES PISTON DIS

Louis Nikrent, Buick.....	9:25.00	17:44.10	27:46.00	36:47.55	45:04.35	53:23.55	1:01:45.65	1:10:09.10	1:18:25.4
A. J. Charles, Ford.....	12:01.30	20:38.50	28:55.95	37:29.35	46:08.25	54:36.75	1:05:34.10	1:14:07.95	1:22:44.6
B. Seibel, E-M-F.....	11:19.85	19:42.05	28:04.50	36:33.10	44:57.20	53:19.90	1:01:48.15	1:10:34.75	1:19:18.4
George Soules, Flanders.....	10:22.10	20:16.75	29:59.35	39:43.60	49:27.95	59:25.45	1:09:18.60	1:19:01.85	1:28:48.9
Harris Hanshue, Reo.....	9:22.85	17:53.75	26:31.20	35:11.25	43:52.05	52:34.95	1:01:20.50	1:10:05.50	1:18:46.9
Vic. Fleming, Locomobile.....	13:38.70	23:42.55	34:04.70	45:16.10	57:31.15	1:09:54.10	1:21:00.90	1:32:08.50	1:43:11.6
A. Dequela, Sunset.....	11:12.30	20:14.05	29:13.10	38:14.05	47:21.00	56:31.10	1:05:38.30	1:17:59.95	Out
A. C. Anthony, Regal.....	12:39.20	20:59.50	29:22.10	37:45.95	1:51:22.50	Out—engine trouble			
Clarence Smith, Maxwell....	10:15.85	18:08.70	Out—lost flywheel						

than two hours later, when the piece de resistance, the free-for-all, was started, that the crowd deserved the name. There was not a vacant seat in the big grandstand and the course was lined solid almost the whole way around. Despite the record crowd, policing facilities were adequate, and, as has been the case in the past when Santa Monica offered road racing, there were no fatalities. Though there were several "near" accidents, only one of them really materialized. "Farmer" Bill Endicott skidded into the fence on "Death turn" and broke his car, which was an Inter-State, and also his heart, for he was more than ordinarily determined to share in the distribution of prize money and was "going some" when he had to quit after completing only three laps in the free-for-all.

The races in the morning were fast and they provided lots of thrills and excitement, but the real interest of the crowd was not in them, but in the free-for-all, which was started last and which was not finished till almost sun-down.

Slightly changing the usual method of procedure, the cars in the "heavy" and "medium" classes were sent away first on their 151-mile journey. In the 301-450-inch class

there were but four starters, and of them Bert Dingley pressed foot on an accelerator and got away first. He was followed at 30-second intervals by Charles Merz (National), Dave Lewis (Stutz) and Harvey Herrick in the same National with which he later won the free-for-all. There were nine starters in the 231-300 class, and many of the drivers in this event, as well as in the others, had been seen in previous struggles over the same course. The order of start for the "medium" car race was as follows: Harris Hanshue (Mercer), Charles Bigelow (Lexington), John Jenkins (Cole), Joe Nikrent (Marmon), Louis Nikrent (Buick), Clarence McKeague (Durocar), Bruce Keene (Marmon), Frank Siefert (Cole) and Rupert Jeffkins (Schacht).

Right from the start Dingley decided to make a runaway of his section of the race and he succeeded up to the 11th lap. But Merz had all this time been attending strictly to his own business, and when Dingley stopped for tires in the 12th lap Merz passed him and never was headed. Dingley made a game fight of it despite the handicap entailed by many tire changes, but at the finish he was nearly three minutes behind Merz's blue streak. Lewis, in

the Stutz, drove consistently and did not take any chances. He was always a dangerous contender, his steady driving and evident headwork making him, after Dingley, a prime favorite for first honors. He, too, had his share of tire troubles, and the best he could do was third place. No particular interest attached to the driving of Herrick, his blue National slipping around the circuit with clocklike regularity and making very little fuss. Perhaps if he had not had the surfeit of tire troubles that was his a different story might have been written. As it was, he finished in fourth place, showing little of the form that afterward won him the free-for-all and established a new world's mark. Merz's time for the 151 miles was 122 minutes 8.45 seconds, and his average speed was 74.42 miles an hour.

Pursuing almost the same tactics as did Dingley in the race for heavier cars, Harris Hanshue held his Mercer in the lead in the "medium" car race up to the 10th lap. Then it was that Bruce Keene, who captured a Marmon for the first time, though he has been first lieutenant to Dawson for some time and rode with him in the last Vanderbilt race, showed his metal and forged to the front. Joe Nikrent, also a

Decided at Santa Monica, Cal., October 14, 1911

2,008 MILES

	13	14	15	16	17	18	19	20	21	22	23	24	Corrected Time
07.70	1:31:49.75	1:38:02.95	1:46:58.60	1:53:46.50	2:00:24.35	2:07:07.26	2:13:34.89	2:20:12.17	2:26:45.71	2:33:28.45	2:40:14.37	2:46:54.60	2:42:24.60
26.45	1:32:04.83	1:38:47.00	1:45:27.60	1:52:11.41	1:58:58.34	2:05:46.96	2:12:35.69	2:19:30.57	2:26:26.65	2:35:58.20	2:43:20.14	2:50:42.73	2:45:42.73
12.00	1:28:57.50	1:35:40.20	1:42:28.57	1:51:39.80	2:01:34.10	2:08:09.60	2:14:50.75	2:21:35.57	2:29:39.70	2:36:06.00	2:42:51.72	2:49:24.53	2:47:54.53
33.67	1:31:30.80	1:38:25.80	1:45:21.40	1:52:18.70	1:59:21.50	2:06:20.85	2:13:19.95	2:20:18.14	2:28:24.16	2:36:03.98	2:43:22.97	2:51:06.90	2:49:06.90
57.30	1:29:35.75	1:36:12.82	1:42:46.95	1:49:29.50	1:56:06.75	2:02:46.74	2:09:26.96	2:16:05.59	2:24:03.68	2:30:57.24	2:44:17.88		
37.72	1:32:30.84	1:39:10.30	1:49:58.19	1:56:50.18	2:03:26.51	2:10:05.27	2:16:43.26	2:23:16.83	2:31:11.76	2:37:50.52	2:44:22.80		
17.93	1:37:36.12	1:44:51.91	1:52:14.26	2:00:28.92	2:07:50.27	2:15:07.20	2:22:27.83	2:29:43.77	2:37:01.82	2:44:23.30	2:51:42.66		
06.75	1:39:19.26	1:46:35.50	1:53:48.74	2:01:06.90	2:08:20.57	2:15:37.92	2:22:55.42	2:30:19.12	2:39:13.24	2:46:56.66	2:54:18.78		
01.00	1:47:19.35	1:54:36.69	2:01:54.77	2:09:14.29	2:16:31.47	2:23:50.14	2:31:04.56	2:38:18.94	2:45:32.29	2:52:47.32			
00.60	1:33:01.68	1:40:53.62	1:58:49.50	2:05:11.44	2:12:32.64	2:25:01.50	2:31:56.26	2:39:10.92	2:46:27.66	2:53:32.98			

151.506 MILES

	11	12	13	14	15	16	17	18	Corrected Time
40	1:15:54.10	1:22:36.40	1:26:16.35	1:35:54.15	1:42:32.75	1:49:13.75	1:55:58.65	2:02:38.45	2:02:08.45
85	1:15:20.25	1:22:01.50	1:28:42.85	1:36:27.00	1:43:52.15	1:50:26.25	1:56:57.10	2:03:26.35	2:02:26.35
10	1:16:48.75	1:23:51.75	1:30:48.70	1:37:48.55	1:44:43.15	1:52:00.10	1:59:00.10	2:04:56.95	2:04:56.95
35	1:17:08.40	1:25:44.20	1:33:24.75	1:38:55.40	1:45:29.35	1:53:21.90	2:00:03.00	2:06:34.55	

NT-151.506 MILES

85	1:25:35.65	1:32:50.50	1:40:16.10	1:47:41.40	1:55:37.00	2:02:28.45	2:09:45.55	2:17:09.95	2:12:09.95
60	1:25:11.35	1:32:33.75	1:39:51.25	1:47:08.85	1:54:26.55	2:01:52.20	2:09:14.85	2:16:33.50	2:13:03.50
60	1:24:15.60	1:31:39.38	1:39:03.80	1:46:23.55	1:53:44.00	2:01:05.25	2:08:24.20	2:15:41.20	2:13:41.20
15	1:27:50.60	1:35:07.65	1:42:24.50	1:49:52.15	1:56:59.60	2:04:15.00	2:11:35.80	2:19:00.80	
80	1:40:08.40	1:48:38.50	1:57:10.65	2:05:33.90	2:13:58.45	2:22:21.20	Flagged		
50	1:35:51.25	1:43:47.10	1:51:52.90	1:59:45.60	2:07:39.90	2:15:34.75	Flagged		
45	1:32:51.50	1:47:13.65	1:57:38.80	2:04:49.80	2:12:41.85	2:20:36.50	Flagged		
70	1:49:17.55	1:57:02.35	2:04:46.50	2:12:34.15	2:20:20.20	Flagged			
70	1:47:01.95	1:55:16.80	2:03:51.52	2:13:47.30	Flagged				

MENT-101.004 MILES

	Corrected Time
65	1:35:07.85
80	1:39:51.65
50	1:49:26.25
70	1:48:44.65
60	Flagged
50	Flagged

recruit in the Marmon camp, was right behind him, and in these positions these two Marmon pilots finished in 2:12:09.95 and 2:13:05, respectively. Hanshue and his Mercer had been forced back to third place just a few seconds behind Nikrent, and finished in 2:13:41.20. Nikrent's brother Louis was fourth, at the wheel of a Buick, and all the others were flagged going strong. Bigelow (Lexington), Jenkins (Cole) and McKeague (Durocar) were each two laps behind the leaders, and Jeffkins (Schacht) and Seifert (Cole) were three and four laps behind, respectively. Nikrent's loss of time was caused by a flooded carburettor in his Buick, and minor troubles, not the least of which were caused by tires, caused the others to lag.

Nine starters, or just three times as many as last year lined up, were sent away in the class for cars of under 231 inches piston displacement, and as they sputtered and snapped around the course their staccato exhausts were in marked contrast to the heavier thuds of the larger cars. They occupied the whole course to themselves. George Soules in a Flanders was the first to get away, and was followed by Harris Hanshue, this time at the wheel of a Reo.

The rest were sent away in the following order: Louis Nikrent (Buick), De Quela (Sunset), Clarence Smith (Maxwell), Bruno Seibel (E-M-F), A. J. Charles (Ford), Vic. Fleming (Locomobile) and A. C. Anthony (Regal).

As early as the second lap trouble commenced to be experienced, Smith, who had driven furiously and was giving promise of better things to come, retiring, the fly-wheel of his Maxwell having broken. Hanshue in the Reo then was in the lead with Nikrent and his Buick second and Seibel in the E-M-F third. The rest were strung out behind in practically the order in which they started. Nikrent was the next man to make an involuntary stop, a flooded carburettor causing it, and soon after Hanshue, too, was compelled to stop and make adjustments, allowing Seibel to drive his E-M-F up into first place, where he stayed till the ninth lap.

Nikrent's trouble cost him a loss of a little over two and one-half minutes, but when he did get back in the race he drove to such good advantage that he overhauled everyone in front of him except Seibel in the E-M-F. Seibel had his share of trouble in the beginning of the 10th lap and Nikrent went to the front and A. J. Charles, who up to that time had been driving a pretty race that brought him up from the tail-enders to the front, slid into second place and stayed there till the end. From the 10th lap to the finish Nikrent never was headed, his time for the 101 miles being 1:42:21.70, which figures out at the rate of 59.20 miles an hour. Seibel was third and George

Soules, who drove a Flanders, landed in fourth place.

Of the others, Hanshue finally got going properly again, but was flagged in the 10th lap, as was Vic. Fleming in a Locomobile. A. De Quela (Sunset) had engine trouble and quit in the eighth lap, and the same variety of trouble forced Anthony (Regal) out in the fifth lap.

By the time the "baby" cars had stopped running the really big crowd was on hand, and as the big cars entered for the free-for-all began to appear in front of the grandstand the drivers were given separate ovations varying in size according to their popularity and reputation. In view of his previous performances, Tetzlaff was the ruling favorite, though the crowd looked askance at his Fiat mount. It was rumored that the car was not in the best of condition, that it had a new engine and that the engine itself had "cut up" so in practice that new pistons had to be fitted. As it afterward turned out, popular opinion regarding the car was not altogether wrong, for of the two cars that had mechanical trouble Tetzlaff's Fiat was one. Tom Dubey's Midland was the other car to suffer mechanical trouble, though it was no fault of the car's. Dubey tried to take a corner too fast and bumped the fence, the resultant shaking up putting the engine out of business in the very first lap.

For the race an even dozen cars were started away in the following order: Howard Wilcox (National), Bert Dingley (Pope-Hartford), William Endicott (Inter-State), Joe Dawson (Marmon), Charles Merz (National), T. Dubey (Midland), Dave Lewis (Stutz), Teddy Tetzlaff (Fiat), Harris Hanshue (Mercer), Joe Nikrent (Marmon), Harvey Herrick (National) and Cyrus Patschke (Marmon).

From the first the race was principally a battle between the National pilots and those who guided the Marmon cars. Dingley was an odds-on favorite and up to the 22d lap, when repeated tire changes put him far behind the leaders, he was a dangerous factor. As already has been chronicled, Tom Dubey went out in the first round of the 202-mile grind, and he was followed in the third lap by "Bill" Endicott, who, it is said, was forced into the fence by Tetzlaff. The Inter-State was wrecked, both

rear wheels being torn off, but driver and mechanic escaped unhurt. The place where this accident occurred is known locally as "Death Turn."

Both Tetzlaff with his Fiat and Wilcox in a National "50" set out at a terrific pace, and at the end of three laps, when Dubey and the Midland came to grief, Tetzlaff was leading by just a minute. Bert Dingley had worked his Pope-Hartford into third place. Soon after this all the leaders had tire trouble and Patschke moved up into second place and pushed the others back. The other cars were bunched in pretty much the same order they started, Patschke being 11 seconds ahead of the Pope pilot.

In the ninth lap Tetzlaff still retained the lead, but only by the hardest kind of driving, as repeated tire changes caused him to lose time as fast as he gained it. Patschke then was second, something like three minutes behind the Fiat driver, and almost on Patschke's rear wheels Herrick pounded along. He had not made a single stop for tires and rapidly was overhauling the leaders.

Tetzlaff met his Waterloo in the 10th lap when he tried to take a corner too fast and blew out both rear wheels at once. While new tires were being fitted Patschke caught up with him and flitted by, to be followed a few seconds later by Herrick, whose National was humming along in perfect contentment. All of the other drivers had been suffering from an abundance of tire trouble, and, with the exception of Dawson, who moved up to third place in the next lap, were far behind the leaders.

In the 13th round Patschke led, with Herrick second and Dawson third, Herrick having made up three seconds on the first man. These positions were maintained to the 15th lap, when Herrick made his only stop to change tires and went back to fourth place, Dawson going up one and Dingley, who had been trailing along behind, slipping into third. From the 16th lap to the finish it was anybody's race, the anybody in this case embracing Patschke, Herrick, Dingley and Dawson. All except Herrick took a turn at leading the bunch and then had to drop back for tire changes. Herrick alone made no stops, and when in the 22d lap he gained the lead he held it to the finish. Between Herrick and Patschke when the wire was crossed the last time there was a little over three minutes, while approximately two minutes separated Patschke from his team-mate, Dawson.

Herrick's time for the 202 miles was 162 minutes 27.6 seconds, and his average figured out in terms of miles per hour is 74.93. Patschke covered the distance in 165 minutes 42.73 seconds, and Dawson required 167 minutes 54.53 seconds.

The summaries of the four races are shown by the accompanying tables, which are reproduced from the official report filed with the A. A. A. and are free from discrepancies which appear in other tables that have been published.

RUSSIA'S REMARKABLE "GLIDDEN"

Despite Damaged Cars, Moscow Team Gets "Perfect Score" and Czar's Trophy—Graft, and Strenuous Going.

Russia has had its "Glidden Tour," and while the participants are certain they did not engage in a pleasure jaunt, they are not yet fully decided whether it was or was not the greatest fake ever palmed off as an endurance contest. According to their European rivals, Russians do not rank high as sportsmen, but even their worst enemies were not prepared for such partiality and unfairness as evidenced in the distribution of awards. First prize was given to the Moscow Automobile Club, which had entered a Mercedes, Berliet, Minerva and La Buire. This in itself would not have been remarkable, but for the fact that the Mercedes broke its steering gear, and the Berliet all of its springs, and that despite this damage the "team" finished with a "perfect score." A certain high official informed one of the participants that the Moscow club was bound to win the trophy, and so it happened. The distribution of prizes, therefore, is one which has no real bearing upon the performance of the cars.

Among the 63 cars that lined up for the start in St. Petersburg, on September 18, were four American, including three Fords and one E-M-F, 21 German, 4 Italian, 18 French, 8 Russian, 2 British, 1 Spanish, 1 Belgian and 4 Austrian productions—a thoroughly international showing. The route led through Wischny, Moscow, Tula, Kursk, Charkow, Jekaterinoslav, Melitopol and Sevastopol, covering 2,086 versts, or 1,300 miles, divided into trips of from 168 to 396 versts per day, according to the character of the roads. The latter were conspicuous by their absence for hundreds of versts and the cars had to go cross country through hub-deep sand on more than one occasion. Despite this fact, 46 cars survived the journey.

The famous Russian "official graft," before which the American article pales into insignificance, had its greatest chance on the laps between Moscow and Kursk. Here the president of the railroad which parallels the route, placed old worn-out sleeping cars, lighted with tallow candles, at the disposal of the "tourists" for three nights, charging each man six dollars per "bed" per night, and finally confiscating all the baggage until \$500 were forthcoming to pay for the transportation of "extra baggage." Every contestant had to pay an entry fee of \$50, and if he dared to question any entry made by the official "observers"—some of whom did not know a four cylinder motor from a six—he had to pay a deposit of \$50 and file his objections within 12 hours. As all the entries were

made in the Russian language, and the majority of the contestants understood no word of it, it is clear that few objections were raised to anything the observers might choose to enter in their books.

The abominable roads were responsible for the early elimination of the Ford cars, which dropped into some of the big holes in the so-called roads and broke axles and springs, or bent a frame member. Only a few of the cars managed to get through with truly "perfect scores," while others obtained the coveted honor by hook or crook. For instance, the Wiesbaden Club of Germany was fined 10 points because one of the nuts on a spring clamp had cracked—while the Rheinische Club (which included among its members the personal aide of the Czar) had all its penalizations remitted; and the Moscow Club, as stated, won the Emperor's prize—although two of its cars should have been disqualified. When one of the contestants, whose car had a perfect score, filed a protest to the president, who also was an aide of the Russian Emperor, against the awarding of the Czar's gold cup (valued at \$3,000) to the Moscow Club, he was told that as the club had all its four cars at the finish line that was reason enough why it should get the prize, but that in consideration of the fine work done by the protestant's car he would be given a special silver prize. The president of the association gave the gentleman five minutes' time to accept this proposition and—the gentleman accepted!

The contest was promoted by the Automobile Club of Russia and was replete with picturesque incidents, not the least of which was the reception at Moscow, where 150 cars bearing members of the Moscow Automobile Club, met the "contestants" six miles from the city, where a splendid banquet was served in tents. While the "tourists" enjoyed the club's hospitality, two aviators came flying through the air, circled above the heads of the guests and showered them with flowers.

Economy Tests to Replace Reliability.

Lack of entries caused the abandonment of the reliability contest of the Motor Club of Harrisburg, Pa., announced for October 16th to 18th. Instead the club will hold economy tests for dealers and private owners November 13th. The former will be judged on the amount of gasoline and oil used, while the owners will be awarded according to the consumption of gasoline only.

Minneapolis Hill Climb is Postponed.

There was no hill climb at Minneapolis Minn., October 21st. At the last moment the Minneapolis Motor Club, under whose auspices it was to have been held, announced a postponement until today (Thursday), the 26th inst. The change, it is said, was made at the request of out-of-town motorists who were not able to be on hand on the 21st inst.

REVISION OF THE FRANKLIN LINE

Changes in Price, Power and Details—Big Six Dropped, Littler Six Added—Auxiliary Exhaust Abandoned.

In an industry which exhibits the imitative faculty as strongly as does the body of American automobile producers, it is a striking distinction for one builder to continue year after year to produce a distinctly differing type and to do so with unfaltering success. The position of the H. H. Franklin Manufacturing Co., of Syracuse, N. Y., in this respect is unique. A long-continued adherent to the air-cooling prin-

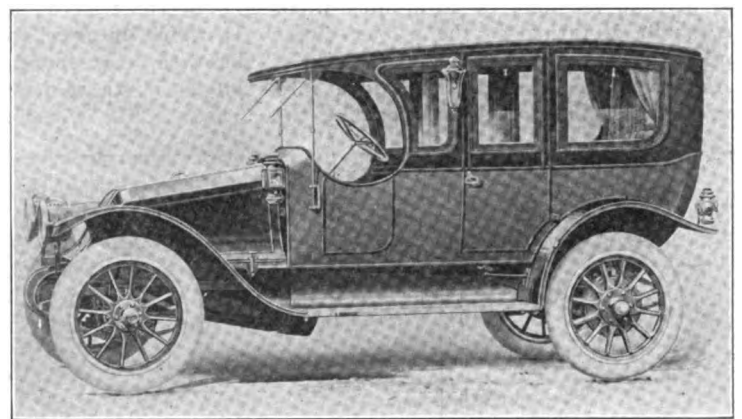
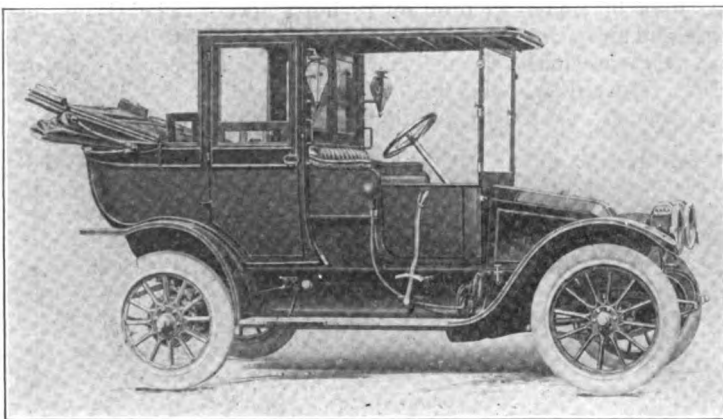
draught the peculiar conditions which rendered the auxiliary valve a necessity are thought to have been eliminated, and tests covering a period of two years have demonstrated to the satisfaction of the Franklin engineers that the motor is "fully efficient" with the single exhaust.

An advance rather more in the direction of modern design is the adoption of a self-contained oiling system of the "pump-over" type, in which a gear pump, drawing from a base reservoir, forces the oil through individual leads to the main bearings, through which it finds its way to the lower connecting rod bearings through drilled ports in the shaft. The overflow from the "big end" bearings is distributed over the interior of the crank case lubri-

matter of spark adjustment. On the small runabout the fixed-spark magneto is retained, but on all others a governor is employed in connection with the magneto of the Bosch dual system, which serves to advance or retard the armature automatically, in direct relation to the speed of the motor, and thus to regulate the sparking point with mechanical exactitude.

The original form of carburetter is retained, together with the manual adjustment of the mixture, which may be actuated from the driver's seat. For the six-cylinder models, however, an automatic auxiliary air valve is provided. The hot and cold air regulating system previously employed is retained.

Fewer alterations have been made in the



FRANKLIN FOUR-CYLINDER LANDAULET AND THE NEW SIX-CYLINDER LIMOUSINE

ciple, and to other striking features, it is notable that, in announcing its new line, the essential characteristics are retained which have rendered Franklin cars not only marketable but desirable.

While the original method of engine cooling by means of an induced draught through air jackets surrounding the cylinder is retained, as are the use of full elliptic springs, laminated wood frame members, light body construction and very large tires in proportion to the weight sustained, the new line, nevertheless, embodies a number of distinct modifications as compared with the output of cars which is now being closed out. Among the more noteworthy alterations are several affecting engine construction in a general way. For example, the auxiliary exhaust has been dispensed with, thereby simplifying construction by eliminating one set of valves with their lifters and cams and at the same time, it is declared, in no way affecting the efficiency of the engine's performance.

The auxiliary exhaust, which was arranged to carry away 70 per cent. of the products of combustion through outlets in the lower part of the cylinders, was adopted in early models when unconfined air circulated over horizontal cooling flanges, and when, in consequence, it was difficult to secure adequate cooling effect. With the present method of distributing the air

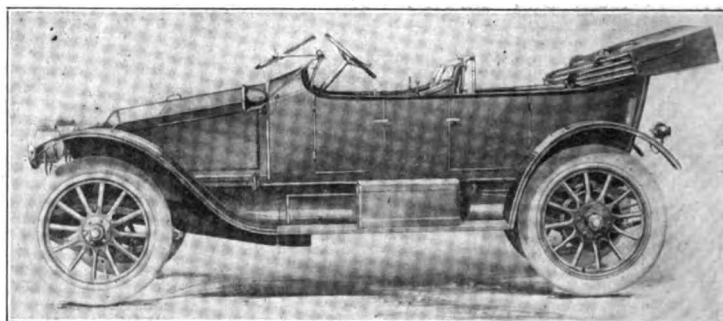
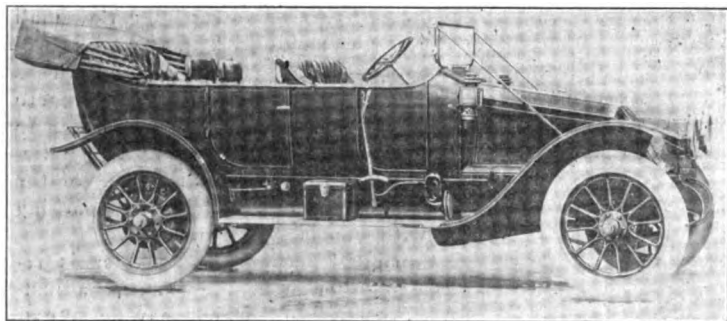
cating the pistons, valve gear and all moving parts not directly provided for. The final overflow from the crank case drains through a fine-mesh screen into the base compartment, the screen forming the separation between the upper and lower compartments and therefore being free from the danger of clogging to which the small-bore strainers sometimes are subject. The sub-base on the four-cylinder motors extends beneath the entire crank case, but in the two six-cylinder models which are to be produced hereafter, it is built under the four rear cylinders. The reservoir is of graduated depth, its lowest point being under the rear cylinder, adjacent to which the pump is located. An oil gauge and a draw-off plug also are located at the same point.

In all save the last-named small motor, the valves are interchangeable and are actuated by an overhead walking-beam arrangement similar to that in use at the present time. One new point in the valve mechanism is the adoption of the integral type of cam, the use of cams separately made and affixed to the shaft having been done away with.

After considerable experience with non-variable ignition, which hitherto has been employed only on the small motor and in the form of a fixed-spark magneto, it has been found entirely practicable to relieve the operator of all responsibility in the

transmission construction than in that of the engine. The multiple disk type of clutch, which is retained, is released by means of a pedal, the shank of which passes through a small round hole in the dash, instead of through a slot; the lengthening of the universal joint blocks four inches, has permitted the gear shifting and emergency brake levers to be placed nearer the driver's seat by a proportionate amount; the shifting rocker shaft of the change gear mechanism now is mounted over the gear box, instead of passing through it, thus permitting the gear-changing movement to be accomplished with less movement of the hand. Timken roller bearings are used for the tubular front axle and likewise in the rear wheel bearings on all models except the small runabout.

Improvements in the matter of equipment include at least one conspicuous feature in the secondary windshield which is attached to the back of the front seat on all models except runabouts and roadsters. The effect, as has been proved by experiment, is to add materially to the comfort of the passengers in the rear seat, adding also a touch of "exclusiveness" to that portion of the vehicle. Other standard equipment includes front windshield, top, head, side and tail lights—the latter on the three larger models being of the combination oil and electric variety—tools and



MODEL H FRANKLIN TOURING CAR AND THE TORPEDO MODEL—BOTH SIX CYLINDERS

storage battery. A foot accelerator, muffler cut-out and a new form of gasoline shut-off, which in addition to affording "off," "main" and "emergency" positions, also permits the tank to be drained when the handle is turned in the proper direction, are other new points.

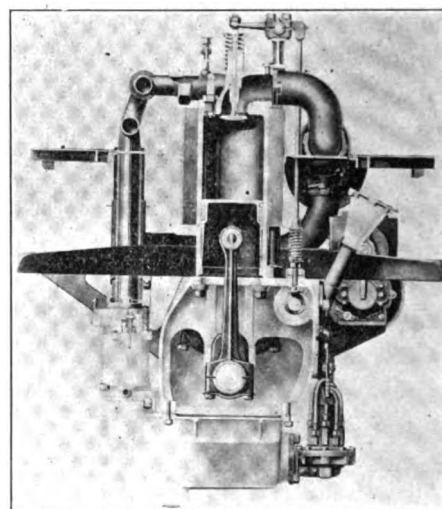
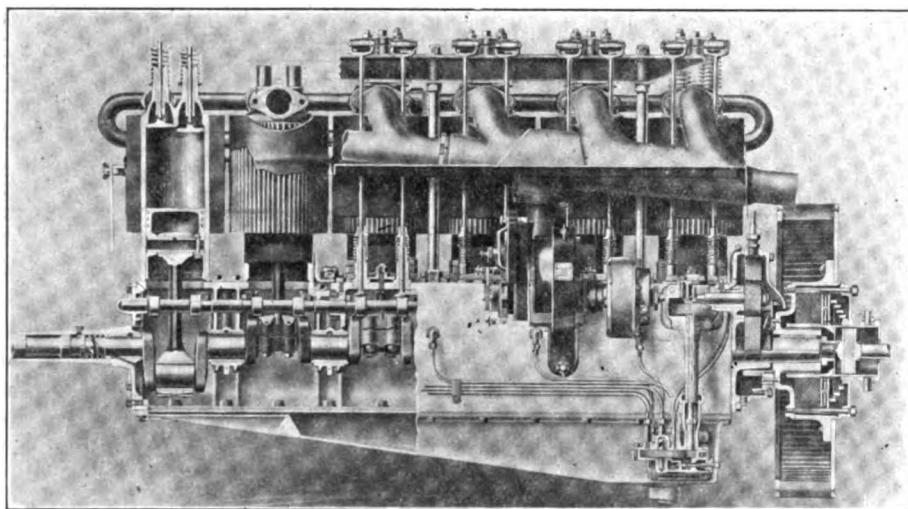
As heretofore, the line is divided into four groups, different chassis forming the

has 126-inch wheelbase, as was the case with the corresponding previous model when equipped as a torpedo-phaeton, and has 37 x 5 inch tires, both front and rear.

The same sized engine is used in model D, which, in price, wheelbase and tire sizes likewise corresponds with the previous model D, these items being, respectively, price \$3,500, wheelbase 123 inches, tires

front and 34 x 4½ rear, are the same sizes.

Model G is built in two styles, one, the small runabout before mentioned, sells for \$1,650 and has a 3¾ x 4 inch four-cylinder motor of 18 horsepower. The G touring car, which is listed at \$2,000, has a 4 x 4 inch four-cylinder, 25 horsepower motor, 103-inch wheelbase and 32 x 4 inch tires. In addition to the standard touring, run-

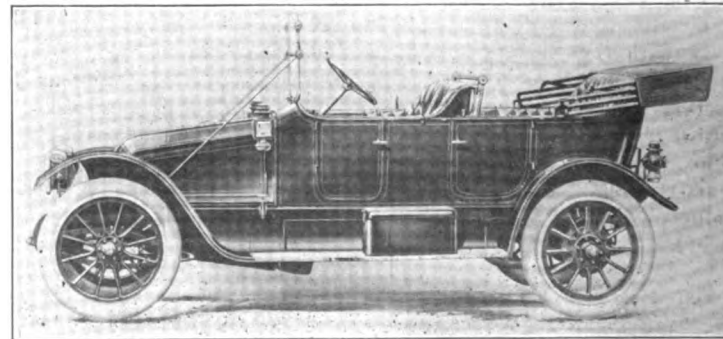
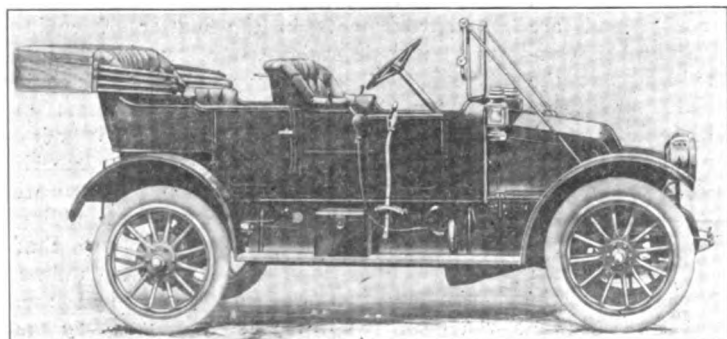


SECTIONAL, FRONT AND SIDE VIEWS OF FRANKLIN SIX-CYLINDER ENGINE

basis of each group. Together with the changes in construction already described, the details of the new line are clearly indicated by comparing the new models with those they are designed to supercede. Model H, the largest member of the line, now sells for \$4,000, instead of \$4,500, and is driven by a 38 horsepower 4 x 4 motor, instead of one of 4½ x 4½ inches cylinder dimensions and rated at 48 horsepower. It

36 x 4½ and 37 x 5 inches, front and rear. Model M now is listed at \$2,800, which is a \$100 advance over the price of the preceding M, but, instead of being propelled by a four-cylinder 4 x 4 motor, it has a 3¾ x 4 six-cylinder motor of 30 horsepower, and is the only "light" six thus far brought out. It has longer wheel base than before, its present length being 116 inches, as against 108, but the tires—34 x 4

about and roadster models, a special model D torpedo of striking form and finish is provided, all other models being equipped with both front and rear doors, though varying from the torpedo in line and form. Limousine and landaulet constructions likewise are offered, the H limousine being particularly distinctive in the manner in which the enclosure of the sheltered front seat has been treated.



THE FOUR-CYLINDER 25-HORSEPOWER AND THE SIX-CYLINDER FIVE-PASSENGER TOURING CARS

The Skuttle Dash; Its Origin and Its Effects

"And this model," continued the smooth-spoken salesman, "has a skuttle dash," and he went on to enumerate the advantages of the construction. The "prospect" looked bored by the recitation; he was clearly un-

tension of its sides over the "chute" to prevent the coals from scattering on the hearth when the receptacle is tipped up. When first automobiles were made with their sides extended upward and curved in

weather out and therefore increase the comfort of the passengers. Any device or method of construction which makes for the greater comfort of passengers is laudable. But some forms of present-day skuttle dashes are not to be commended for the simple reason that their intended effect is exactly reversed. Which is to say that the effect is not unlike that which would be obtained if heavy garments were worn in the middle of August to keep out the heat! On the assumption that "all cats look alike in the dark" and that one form of skuttle dash is as bad as another in this respect, some manufacturers consistently refuse to use them, and there is a well-defined tendency in Continental and British motoring circles to get away from this construction as much as possible.

But this question, like very nearly every other, has another side, and its essence is ventilation. An internal-combustion engine is essentially a heat engine, and though its temperature is kept fairly low by the cooling water, all engines of this type operate at temperatures considerably higher than normal atmospheric. It stands to reason, therefore, that some of this heat must be communicated to the dash itself and to the

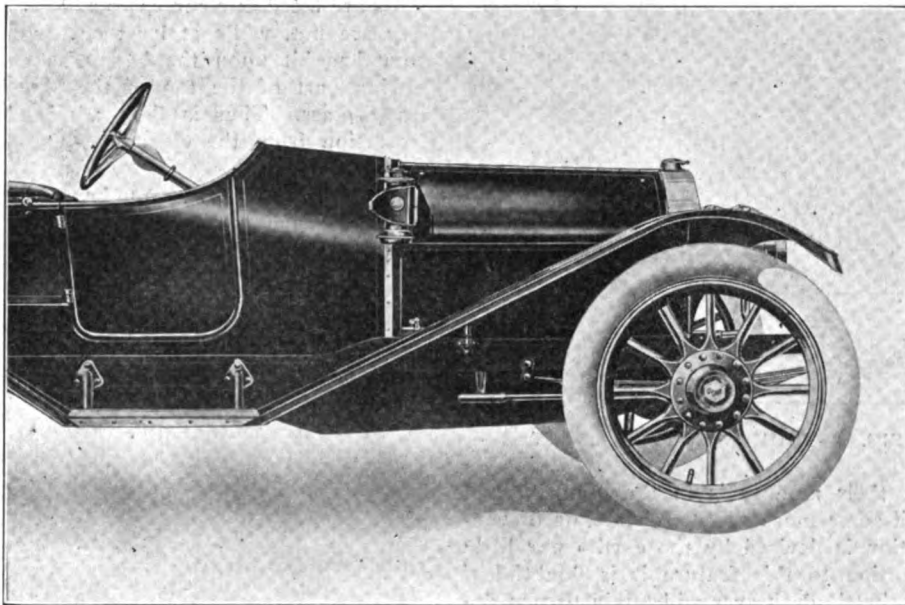


FIG. 1—SHOWING DEEP SKUTTLE DASH—THE OVERLAND

comfortable and any student of human nature might have divined that he wanted to ask a question and yet was chary in the fear that it might parade his ignorance. At length he screwed up his courage to the breaking point and looking the salesman squarely in the eye, he said:

"What do you mean by skuttle dash? I never heard of one before."

The salesman looked his surprise. "Why it's this part here," he explained, as he passed his hand caressingly over the glossy paint on the extension of the engine hood which partly closed in the driver's compartment and made of it a cosy little "cubby" hole.

"Yes, but why skuttle?" asked the "prospect," and he raised a question which has stumped more than one salesman and more than one motorist as well. Most dictionaries reveal nothing in their stereotyped phrases: others that have illustrations are better, though the average individual scarcely might be expected to guess the connection between so plebeian and prosaic an article as a coal-skuttle and an automobile.

And yet that is exactly where the term "skuttle" as applied to that particular style of body construction originated. The kind of coal-skuttle used most "across the pond," where the phrase was coined, and to a limited extent in America, boasts an ex-

to be joined over the top of the dash, thereby partly closing in the driver's leg space, some one remarked the resemblance to the common or home variety of coal-skuttle and ever since then the name has stuck.

But whereas the object in so constructing coal-skuttles is to keep the coal in, the function of the skuttle dash is to keep the

flood boards, added to which there is a continual draft of hot air forced by the fan through the holes in the floor boards through which the pedals protrude.

It is the experience of motorists and manufacturers alike that unless some means of disseminating this heat is provided the driver's compartment of a skuttle dash car

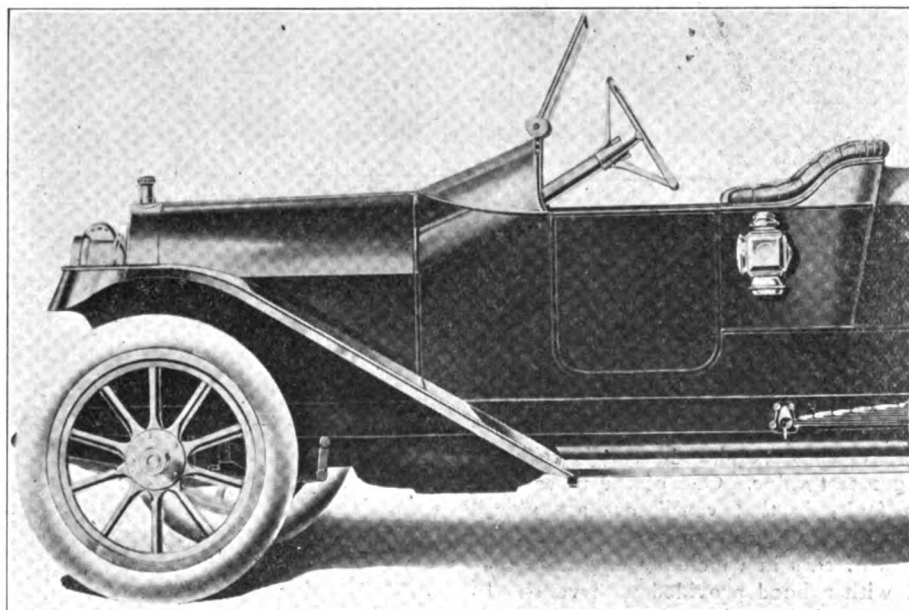


FIG. 2—SKUTTLE MOUNTED WINDSHIELD ON KING CAR

speedily becomes unbearable in warm weather or torrid conditions. Of course the heat is desirable in cold weather, and though it has been suggested that the front doors be removed in warm weather, it is not always possible easily to detach them, particularly if the car is of the so-called torpedo variety. The problem has been, and in many cases still is, to provide some means of easily varying the amount of cold air which can be admitted.

Better than the suggestion that the front doors be removed, the scheme of some manufacturers, who have provided latches whereby the doors may be locked "ajar," still has its drawbacks, i. e., either too much cold air is admitted and the draft becomes uncomfortable, or none is admitted (when the doors are closed) and the conditions are not altered. Other manufacturers provide proper ventilators let into the sides of the dash beside the end of the engine

any unobstructed position a draft of "new" air can be obtained. That ventilation can be made very nearly perfect, however, is evidenced in a number of brands of car of which a complaint seldom if ever is heard.

must be when it is partly closed in. But this scarcely can be considered to be a serious drawback to the popularity of the construction, for the reason that dashes are becoming freer of equipment almost momentarily, and in the majority of cases it seldom is necessary that dash fixtures be consulted en route.

Foreign cars, on the other hand, have not attained that degree of simplicity that marks the American product, as a rule, and dashes still are receptacles for multitudinous devices. To make them plain, electric lights are fitted in some cases and in others they are not, while at least one manufacturer has hit upon the happy scheme of making part of the top of the skuttle of heavy glass. Thus is light admitted and protection from the elements obtained at the same time.

American manufacturers have not resorted to such methods as yet, and it is

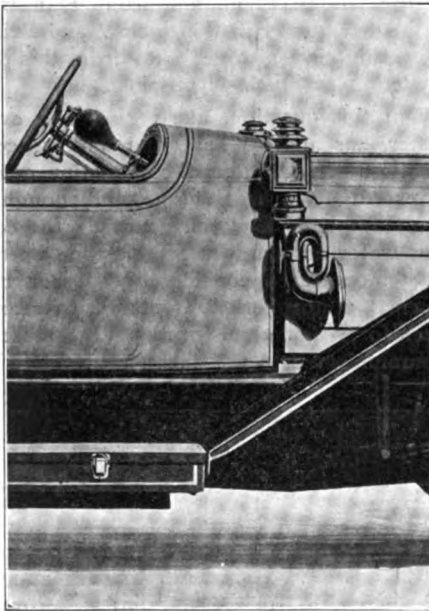


FIG. 3—STODDARD-DAYTON CONSTRUCTION

hood, which may be opened or closed much or little at the will of the operator.

But while such ventilators undoubtedly better conditions materially, the fact remains that in a large majority of cases they are woefully inadequate and in nearly as many cases are placed wrongly to be of the greatest value. One of the more common faults is that ventilators are placed comparatively low down in the sides of the dashes of cars in which the engine is covered with a hood provided with vents. In which case it is obvious that not all the air which is admitted through them is fresh and cool; a part of it at least must have come, heated, through the vents in the engine hood.

Of course where the engine hood is not provided with vents, and a large number of cars are so constructed, a difference of a few inches either way in the height of the ventilators is a small matter, as in almost

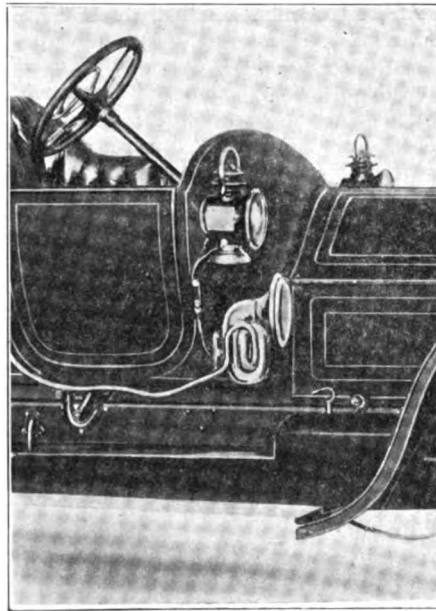


FIG. 4—THOMAS CONVEX SKUTTLE

But their number is in the minority and until some more successful method of ventilation is devised by those who pay little attention to this feature it is doubtful if the skuttle dash ever will attain to that degree of popularity to which it is entitled by reason of its other advantages.

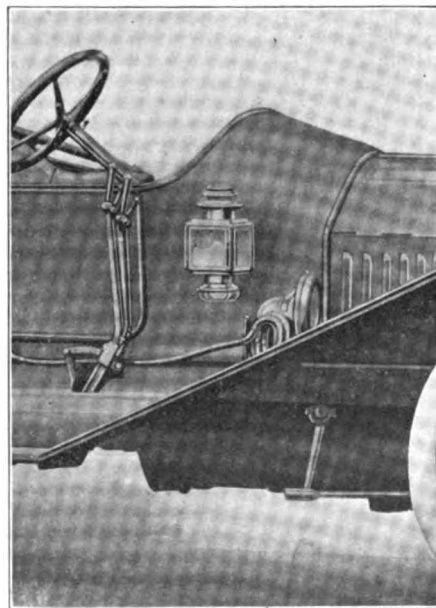


FIG. 5—MAXWELL SKUTTLE DASH

There is another feature which also has been charged against the skuttle dash and which is more or less of a bugaboo. This is the comparative obscurity in which the dash itself is placed when a skuttle is added. Of course the dash is darker; it

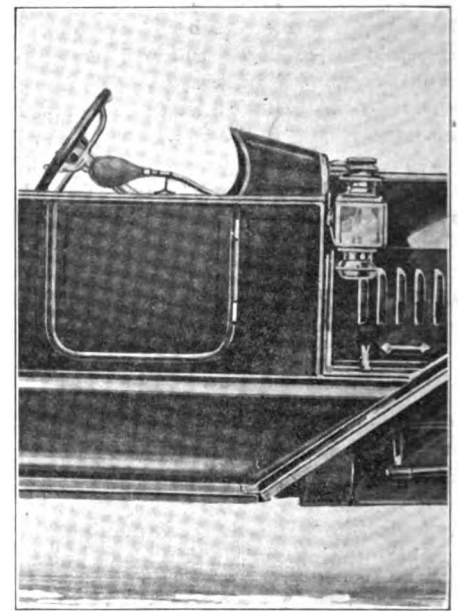


FIG. 6—JACKSON SKUTTLE DESIGN

unlikely that they ever will, because, as already has been stated, the simplicity which marks American cars makes it unnecessary for dash appliances to be continually under the surveillance of the operator.

Engine noises and other disturbances undoubtedly are accentuated by a skuttle dash, which acts much after the manner of the horn of a phonograph in intensifying such sounds and bringing them to the notice of passengers. But engines and other component parts of the car are quieter now than ever before, and in all probability will be still more quiet in the future, and the slight tapping of the valves, which is about the only noise which emanates from the modern engine, scarcely can be objectionable.

It is in the matter of protection that the skuttle dash scores most heavily. The beauty of outline which it allows naturally

is a factor in its favor, but the protection which it affords is of greater import and is its real *raison d'être*. Its effect in this respect may be judged from any one of the accompanying illustrations, which have been picked at random from the late models.

Illustrative of the tendency toward even longer skuttles, Fig. 1, which depicts the Overland car, shows graphically the protection they afford to the driver and the occupant of the seat beside him. In this particular instance the skuttle is in effect as well as in reality a continuation of the body sides up over the top.

In the King car, shown in Fig. 2, the arrangement is slightly different, the skuttle being shorter and set at a slightly greater angle. One of the noticeable points in the construction of the skuttle and the front part of the body is that there is no extension of the dash beyond the sides of the engine hood as generally is the case. Instead, the body is curved in to meet a dash of the same width as the hood, and the clean lined effect which is obtained is unmistakable. The location of a windshield on top of the skuttle simplifies the method of its attachment; several other manufacturers make use of this arrangement. In the attachment of the Chalmers windshield, which also is located on top of the skuttle, for instance, a novel scheme of ventilation has been made use of. The windshield does not rest on the skuttle proper but on a curved wooden piece which fits over the edge of the skuttle and leaves a space of approximately one-half inch which is open. The wind, deflected by this curved member, rushes down into the compartment, but is directed forward and impinges first on the dash itself and consequently there is no uncomfortable draft, though the forward compartment is thoroughly ventilated.

The finished appearance which a skuttle dash gives the body of a car is well illustrated in Fig. 3, which shows one of the late model Stoddard-Dayton "sixes." In this case also the skuttle is built integral with the body, though, unlike the others, it is finished at the edge with a narrow mahogany strip, which gives it a slightly more solid appearance and makes it more than ever an actual part of the body. The angle of the skuttle, too, is slightly less and conforms with the general straight-line effect which is produced in the rest of the body.

Though it may not be generally known, the exact angle at which the skuttle should be set is a matter which warrants a considerable amount of study. As already has been stated, the object of fitting skuttles is to increase the comfort of passengers, but when they are so arranged that wind is deflected directly into the faces of the occupants of the front seats, it is a question whether they properly perform their duty. Theoretically they should deflect the wind over the driver's head, though this

fact often is overlooked when a change of possibly only an inch would make a very great difference and the car would be very much more comfortable.

In the Thomas arrangement, shown in Fig. 4, wind deflection is changed considerably by forming the skuttle in a convex curve, the effect obtained being that the skin friction generated by the wind causes it to cling to the skuttle to a certain extent and it is dragged down and not projected directly in the driver's face, as it might be if the skuttle were straight or a concave curve. Incidentally eddy currents of air are caused to swirl downward and ventilation is made more perfect.

Maxwell construction, shown in Fig. 5, is illustrative of orthodox practice, which steadily is gaining in popularity by reason of its pleasing lines and the general clean-cut, smooth appearance which it gives. Obviously it affords all the protection that skuttle dashes in general do, and in addition it has the advantage that it is formed integral with the body and therefore serves to strengthen it. In this design, also, the dash is not extended beyond the engine hood and wind resistance is reduced in a measure.

A pleasing variation of the skuttle dash idea, which, in addition to enhancing the appearance of the car as a whole, also serves a useful purpose, is shown in Fig. 6, which depicts one of the late models in the Jackson line. As may be seen in the picture, the body is essentially a straight-line creation and is carried forward to meet the dash, which extends beyond the engine hood and mounts the lamps. From an esthetic point of view, the effect of the concave curve at the back of the skuttle may be judged better from a glance at the picture, or the car itself, than from a description. From a practical point of view, this construction allows of better ventilation and also of better light on the various dash appurtenances.

Of the many points which may be cited in favor of the skuttle dash, the reduction of wind resistance which it permits is of more than ordinary importance. It has been suggested on more than one occasion that "it is the maintenance expense rather than the actual first cost of an automobile which deters people from purchasing." And skuttle dashes have a direct bearing (slight but nevertheless apparent if time is taken to search it out), on maintenance cost. Without going deeply into the subject, it is apparent that it requires more power to propel a large surface against a head wind than it does a small one. For the reason that the skuttle dash reduces wind resistance it also reduces upkeep expense because it requires less power—which means less gasoline, and cylinder oil, and tire wear—to force a slightly pointed, or tapered, object through the air than it does to drive a square surface of the same area through it. That the skuttle dash has come to stay is beyond dispute,

and is evidenced by the fact that practically every manufacturer now lists at least one car which is so constructed.

Methods of Testing the Mixture.

Testing the mixture by the expedient of shutting off the gasoline supply to the carburetter, is a simple method recommended by William H. Stewart, Jr., of the Stewart Automobile Academy, of New York City. "If the mixture is too rich, the engine will speed up as the level of fuel in the float chamber is lowered by the reduction of the supply," as Stewart explains in substance, "while if the mixture is too rich that fact may be made plain by partly flooding the carburetter while the engine is running and before the fuel is cut off." Both tests, of course, are perfectly correct as far as they go, but in cases where the carburetter is not accessible while the vehicle is in motion, should not be taken as conclusive. In that connection it must be remembered that the mixture yielded while the engine is running without load, as a result of faulty regulation, may not be the same as that generated when the engine is "pulling" to its utmost capacity. Where such proves to be the case, the only successful method is that of successive trial and error.

Charles Y. Knight Patents New Piston.

To a long series of British patents covering various phases of engine construction, Charles Y. Knight, the American inventor, recently has added a piston design which is of peculiar interest because of its probable bearing on sleeve valve engine operation. The avowed objects of the invention are those of silencing the action of the motor and also of preserving the piston proper against the risk of seizure. To this end the piston is provided with a wide shield in the form of a spring ring which covers nearly the whole of the surface below the main packing rings. A space between the piston and shield ring is designed to be filled with oil, which is scraped from the cylinder wall by the edges of the ring, and which serves as a cushion to prevent the audible "slapping" of the piston alternately against opposite sides of the cylinder as its motion is reversed. In case lubrication should fail it also is anticipated that the shield ring, and not the piston, would seize, thereby limiting the resulting damage to a readily replaceable part.

Rendering Guideboards Luminous at Night.

Recognizing the uselessness at night of the ordinary form of guideboard, a Birmingham inventor has devised a new form of sign which is set with faceted and mirrored glass "jewels," which are designed to reflect the rays from automobile headlights and thus render the inscription visible from a considerable distance. The invention is further applied to the illumination of the conventional warning signals for turns, dangerous hills and obstructions.

BOSTON'S MODEL ELECTRIC GARAGE

Equipped and Maintained by Edison Company Chiefly for Educational Purposes
—Some of Its Features.

Recognizing the vital necessity of proper garage facilities in influencing the upbuilding of the electric vehicle industry, the Edison Electric Illuminating Co., of Boston, Mass., has sought to improve existing conditions by establishing a model garage in a building at 476 Atlantic avenue, which is owned by the company, and in conducting it according to plans which have been worked out with the co-operation of the garage committee of the Electric Vehicle Association of America. This is but one of several novel methods adopted by the Boston company in boosting the electric vehicle, another and equally radical scheme being the appropriation of a liberal sum of money for the use of the Massachusetts Institute of Technology in carrying out research work in regard to street transportation problems, particularly with the object of showing the relative efficiency of the electric and other types of vehicles.

This model garage, as described by E. S. Mansfield, in a paper on "The Central Station Back of the Electric Vehicle," which was read before the recent annual meeting of the Electric Vehicle Association, is a one-story concrete building formerly used as a garage for both electric and gasoline vehicles. In fitting up the building no attempt was made toward artistic effect, but every effort was exerted to provide means for the best of service in the simplest and most inexpensive manner possible, one motive being to prove to prospective garage owners that a model electric garage can be equipped at a moderate expense.

The portion of the building fitted for this purpose covers an area approximately 100 feet by 50 feet, capable of accommodating between 20 and 30 vehicles. The current for charging is obtained from the Edison company's direct-current three-wire mains, and is conducted to two charging panels in the operating room located in one corner of the building. Each panel has mounted upon it six charging switches, and charging rheostats from which the current is delivered to charging receptacles conveniently spaced about the charging area. Space has been reserved for additional equipment when required. Charging cables of various lengths carrying plugs at both ends are provided to accommodate vehicles in any part of the building.

The floor consists of a smooth concrete surface, and the entrance is of sufficient size to admit the largest truck when fully loaded.

The washstand is located at one end of the building, while at the other are the repair shop, battery space, work bench

with a full equipment of modern tools for light repair work, and facilities for charging ignition batteries.

The office, located in one corner of the room, is comfortably fitted for the convenience of operators, where it is planned to keep operating, repair and maintenance data in detail, so that exact costs of all descriptions can be figured out for customers' information, or for commercial comparisons.

A gallery at one end of the room contains the stock room where supplies and spare parts are stored, also the drivers' quarters, provided with lockers, table and chairs for their convenience. The entire room is lighted by Mazda lamps equipped with Holophane reflectors, so spaced as to give adequate illumination at a minimum expense.

Although the ultimate method of charge in electric garages will doubtless be on a kilowatt-hour basis plus a fixed garage cost, the company has offered its customers the option between this and a flat rate per vehicle per month, covering electric current for charging, irrespective of mileage, washing, polishing, flushing, battery testing, expert advice, adjustments and minor repairs. In addition to this regular service the garage is equipped to undertake at all times the overhauling of vehicles or batteries, battery washing, renewal of electrolyte, extraordinary repairs, replacement of worn or broken parts, and the supplying of new tires at regular commercial rates. It is planned to have spare vehicles at the garage which will be available for towing, in case of accident or failure of power, and for rental when machines are laid up for painting or repairs.

"In placing this garage at the service of the public," as the above-mentioned authority was careful to explain, "the company did so in an entirely non-competitive spirit, in no case seeking new customers or attempting to divert machines from other garages; but primarily to provide a home for commercial electricists in its immediate vicinity, and to offer the best service to any vehicles which were unable to secure it elsewhere. After being in operation about six months, its capacity already is nearly taxed to its limit, and it has proved itself to be of the greatest assistance to the electric vehicle interests in Boston, not only on account of the grade of service it has itself rendered, but by raising the standard of service in the other garages."

Nine More Electrics for St. Louis Mails.

The post office authorities of St. Louis, Mo., have found the electric delivery wagon so well suited to their needs that nine additional electrics have been added to the equipment. These nine cars will carry about 300,000 pieces of mail on each haul and will be capable of making 50 miles under full load before recharging. They are Waverley cars of 2,000 to 2,500 pounds capacity.

FRONT PASSENGERS AS LOOKOUT

State Court Held That They Must Act in That Capacity and Highest Court Refuses to Intervene.

Whether or not a passenger in the front seat of an automobile is obliged to assist the driver in looking out for dangerous crossings, while passengers in the rear seat of the same car are freed from this responsibility, is a question which the Supreme Court of the United States has declined to pass upon at the present time. The reluctance of the highest court in the country to place itself on record in this matter is believed to be due to the great confusion existing at present in regard to the contributory negligence clause in damage and accident litigation.

The case which was brought before the court was that of Charles D. Henderson, who was injured in a collision between the automobile in which he was riding and a Pennsylvania Railroad train, near Camden, N. J. Henderson, as well as a woman passenger, sued the railroad for damages, with the result that a jury in Camden decided in favor of the woman but against the man. It was brought out in the trial that Henderson had been sitting in the front seat alongside of the chauffeur, and that he had as much opportunity to see the approaching train as the chauffeur. His failure to warn the latter in time mitigated against him in the opinion of the court and the jury. The woman, which occupied a rear seat in the same car, was under no such obligation or duty and was awarded the damages asked.

Henderson appealed his case, the Supreme Court being asked to set aside the verdict of the lower court. The high tribunal, however, declined to review the evidence or to render any decision at the present time.

"Automobile School" Promoter Arrested.

At least one of the many men who have found the so-called "automobile school" a short cut to easy money is in trouble with the Federal authorities. He is Glen D. Gearhart, who conducted The Motor Car School in Houston, Tex., and is in a fair way of learning a new lesson himself. He has been indicted by the Federal grand jury on a charge of using the mails with intent to defraud. His bait was the usual one of offering to transform ambitious but unskilled young men into graduate chauffeurs and automobile mechanics in practically no time at all, and to secure jobs for them after they had "graduated." Five young Texans, who each parted from \$45 to be thus transformed, were the complaining witnesses in the case. They charge that Gearhart failed to carry out his part of the agreement.

"Keeping Tabs" on Taxicabs; the New York Plan

"You can't tell whether you are getting robbed or not, because the taximeters register what the drivers want them to regis-

8,961 meters, of which 1,400 were condemned, either for over-registry or under-registry. Furthermore, the inspection in

based on actual tests of revolutions of the front wheel.

The bureau, which is styled the Taximeter Inspection Bureau, and is under the Bureau of Licenses, maintains a big garage on the ground floor of the building at 248 West 49th street. Here a record is kept of every licensed vehicle in New York City, and the taxicab list is at present about 2,000. Over a dozen men are em-



DETERMINING THE "WAITING TIME" CLOCK'S ACCURACY

ter and not according to distance," is the way the cynical wisecracks talk about them. But it happens that in some respects these wisecracks are distinctly wrong, at least so far as concerns taxicabs in New York City. The city now sees to it that every taximeter in service is correct—and sees to it in no casual manner but with a vigilance and thoroughness of equipment that opens

**CITY OF NEW YORK
BUREAU OF LICENSES
TAXICAB DIVISION
248 WEST 49TH STREET**

This is to certify that this taxicab and the taximeter affixed thereon were inspected, tested and approved _____ 191

Certificate No. **9,599**

CERTIFICATE DISPLAYED IN THE CAB

the eyes of anyone who, unacquainted with the system, has opportunity to see its workings. It is safe to say that few of those who have to do even with the automobile business of the big city are aware of the thoroughness that now prevails.

In the twelve months from August 10th, 1910, to August 10th, 1911, the municipal bureau in charge of taxicabs inspected

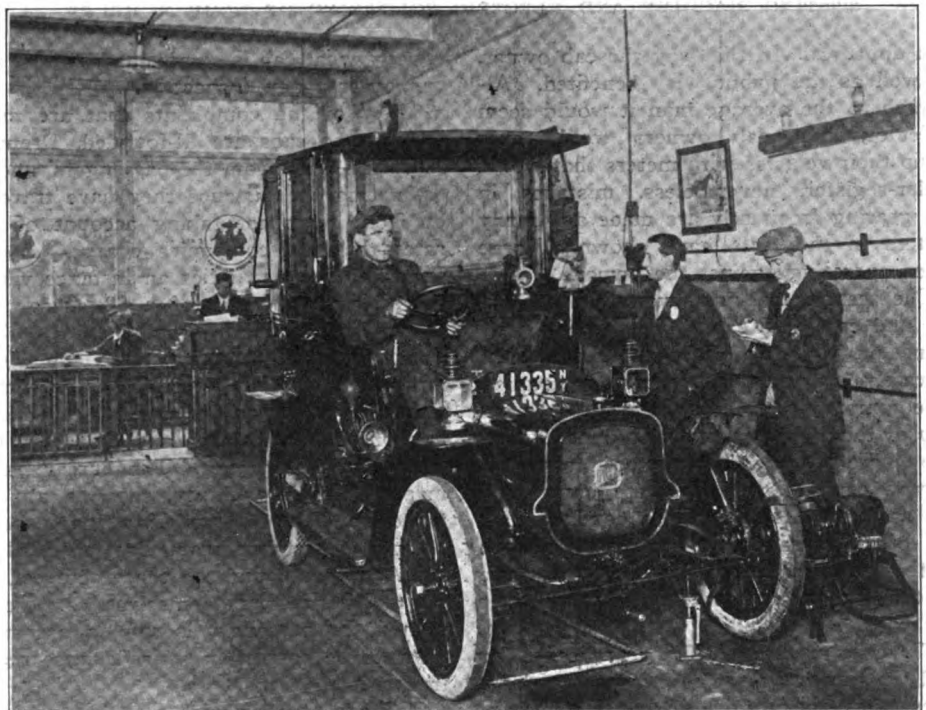
each case was made after the taximeter had been installed on the cab and was

is geared is jacked up opposite a testing machine and connected to the latter by



METER INSPECTION SEAL

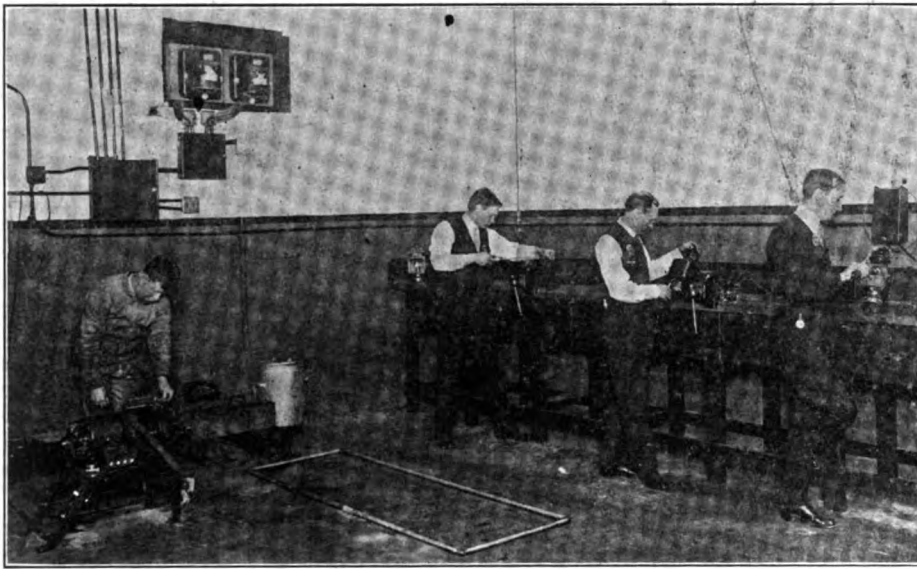
ployed in the work of testing the taximeters. The old method of the bureau was to compel the cabs under inspection to travel a measured mile on Eighth avenue, but a much more satisfactory and rapid method is now employed. The correctness of the gearing on the meters themselves is determined by means of an electric meter device which revolves the wheel of the taxicab and counts the revolutions. The wheel to which the meter



COUNTING THE WHEEL REVOLUTIONS PER MILE

means of leather straps. The leather straps afford a flexible connection and avoid the necessity for universal joints or for accurate centering.

The cab wheel must revolve a given number of times for a mile on the meter. Most cabs used 32 inch tires, which, allowing for compression, means that the wheel would revolve between 637 and 638 times to the mile, but the inspection bureau gives the public a slight margin of advantage by making 640 revolutions to the mile the standard for this size of tire. Whatever slight variation the registration may exhibit, must be in favor of the public, though any error amounting to as much or more than 5 per cent. against the taxicab owner is ground for refusing inspection.



TESTING MACHINE AND ELECTRIC SOLDERING OF LAMP NUMBERS

tion approval. In this way the cab owner, as well as the public, is benefited. Although to the average man it would seem ridiculous that cab owners would ever equip their vehicles with meters that would under-register, nevertheless, mistakes in the gearing frequently are made and many meters in the tests have shown a large error operating against the owner.

The testing machines were built to order and cost \$125 each. The bureau itself owns six of them, while three more are privately owned by taxicab companies. One company operating about 600 cabs has two of the machines, while in another garage there is one. Inspectors from the bureau conduct tests in these garages in the same way that they are conducted by the official garage. In fact, one employee of the bureau spends his whole time at one of the big garages, where there are over 500 cabs.

Taxicabs must pay \$10 a year license fee and their meters must be inspected at least once every six months. Because of breakages the average of inspection is much more frequent than this, and whenever a new gearing is introduced in the installation there must be a new inspection before

the cab is put in service. The taxicabs are entitled to as many inspections as they require without cost. Each inspection carries with it an inspection certificate and the serial number of this certificate is marked on the meter itself by means of a small metal medallion, while inside the cab there is placed a conspicuous card in a metal frame, giving the same inspection number in large figures, together with the date of inspection. The simplest way for a passenger to make a complaint concerning any particular taxicab or its meter, according to John Drennen, Chief Inspector of Taximeters, is to indicate the inspection number as given inside the cab itself and on the metal tag attached to the meter, and from this the bureau can determine

exactly what cab is complained against and can order a new inspection.

Many of the complaints that are made against the cabs are ill-founded, Drennen says, and arise from the passengers' underestimating the distance they have traveled or from their not taking account of the rates that the companies charge. As an example, Drennen cites an instance where complaint was made of a \$2 charge for taking a passenger from Bretton Hall, Broadway and 86th street, to the Hotel Arlington, on 25th street. The passenger claimed that his charge was out of all proportion to the distance and that the taximeter must be wrong. The bureau has a map of New York City, showing all distances in fifths of a mile, and upon measuring the distance from Bretton Hall to the Arlington found the charge correct. So far as the meters themselves are concerned the passenger is safe in assuming them to be correct in their distance registrations.

If the passenger wishes to be sure that he will not be cheated he properly may take the precaution of seeing that when he enters the cab the taximeter is "clear," meaning that it has no charge indicated

on the dial. There is one style of meter in which the "extras" are added in with the total as well as being indicated separately on the lower face of the dial. These "extras," which are permitted for the carrying of trunks, etc., are added to the meter charges by the driver himself. It, therefore behooves the passenger to see that the "extra" dial is cleared or that it has no excessive charge on it. Otherwise the driver may add two or three dollars to the extras and by concealing the extra dial obtain more than he was entitled to in the total reading.

Among the other precautions that are suggested by the bureau is one that relates to the cabs at night. The law requires that meters be illuminated after sundown, and a passenger is quite right in refusing to employ a cab where the meter is not brightly lighted so that the figures may be easily read. No other person than the driver and the passenger is allowed to ride without the passenger's consent. In this case silence is regarded as consent, so that the passenger should make vigorous objection to the driver if the latter takes a companion on the front seat. For the purpose of making the identification of an offending cab complete, the passenger, in addition to taking the certificate number inside the cab, can also take the cab license number on the lamps.

The same ordinance that created the taximeter inspection bureau also set forth a scale of legal maximum charges, but these rates were declared void by Justice Bischoff, of the New York Supreme Court, about a year ago, on the ground that they were confiscatory. The charges allowed by the ordinance were 40 cents for the first half mile or any part thereof and 10 cents for each additional quarter mile or part thereof, with waiting time at \$1.50 per hour. Lower rates were set for taxicabs seating two people instead of four, but inasmuch as no taxicab owner is quite so dull as to fail to have seats for four, even if two of them be nothing more than the most uncertain sort of tiny folding perches, the two-seater rates never apply. When the rates as set by the ordinance had been knocked out, the taxicab concerns advanced their rates to 50 cents for the first half mile and 10 cents for each additional quarter mile. This later was followed by still another raise on the part of some of the companies, to 50 cents for the first two-fifths of a mile, which is eight city blocks, north and south, and 10 cents for each additional one-fifth of a mile, or four city blocks.

Still further increases in the taxicab rates are being projected, and the only legal limit that would obstruct their increase to whatever figures the cab owners might choose is the old coach rate law. This law applies to vehicles carrying four persons, and allows \$1 for the first mile or any part thereof, and 50 cents for each succeeding half mile or part thereof.

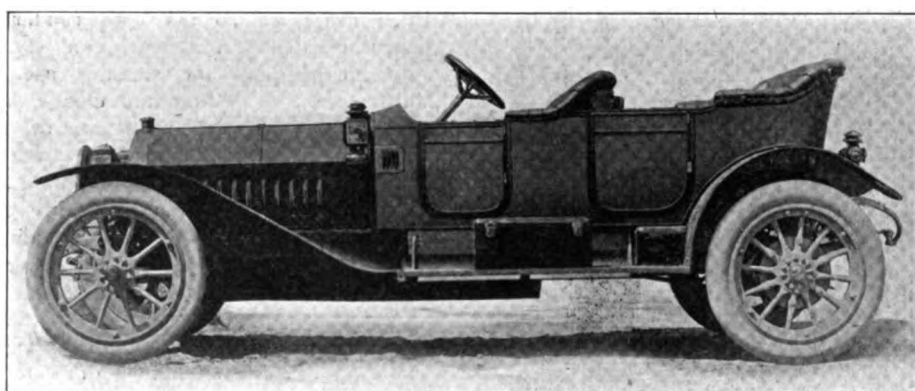
PREMIER UNDERGOES REFINEMENT

**But Not Much Room Was Found for It—
Cork Inserts Removed from Brakes,
but Retained in Clutch,**

Having developed a staunch and trustworthy car, the Premier Motor Manufacturing Co., of Indianapolis, Ind., is satisfied to continue to produce it with very few changes—with so few changes, indeed, as to indicate a full measure of confidence in its construction. Series M, as the new line will be known, while the same mechanically as its predecessor, saving in a few detail respects, will have a new line of

engagement. To facilitate the handling or removal of the clutch, the shaft which connects it to the change gear mechanism is arranged to telescope when a collar is released; any one part in the group thus may be dismantled without disturbing either the engine or gear box.

One of the new features of the latest model is the clutch release mechanism, which consists of a bronze collar carrying two annular ball bearings; these work against hardened and ground steel disks, the group forming a part of the clutch release cone assembly. The effect of the bearings is to avoid friction between the stationary and moving parts when the clutch is disengaged and thus to facilitate gear changing. The release of the two



THE PREMIER "CLUBMAN"—A "6-60" TOURING CAR

bodies, as a matter of course, and generally will be brought thoroughly up to date.

Of the alterations which have been made perhaps the one likely to excite the most remark is in itself comparatively small, i. e., the adoption of Raybestos linings for the internal-expanding service brakes which formerly were equipped with cork inserts. The Premier company was among the first to adopt cork inserts, and its use of that form of friction surface in the brakes has been one of its distinguishing features. The use of the special lining fabric, with its interwoven metallic strands, however, is directly in line with prevailing practice in the industry, affording, as it does, ample gripping power with good wearing qualities and also certain not unimportant structural economies.

The arrangement of the brakes also has been altered to some extent, the pull-rods now being carried entirely inside the frame and being led to equalizing beams which are attached to the rear of the sub-frame. This provides a better relation of parts, ensuring more reliable action and longer life, together with less risk of injury to the all-important braking mechanism. It also serves materially to improve the appearance of the machine.

The clutch still embodies the cork insert feature and is a strong point in the construction of the car. It is composed of 21 disks, alternate members being fitted with cork pellets to ensure smooth and gradual

groups of plates within the clutch itself is assisted by means of small steel springs which serve to pry them apart.

As heretofore, the Premier line includes both four- and six-cylinder models, the cylinder dimensions being the same in both cases, or $4\frac{1}{2}$ by $5\frac{1}{4}$ inches, bore and stroke. The cylinders are cast in pairs and in T-head form, and with the opening to the lower end of the water jackets closed by a light aluminum plate in each case. Besides relieving the motor of some weight, this design serves a useful purpose in enabling the jacket spaces to be cleared of all remnants of core sand, and also provides a yield point in the event of the freezing of the jacket water. The buckling or breaking of the cover plates, of course, would relieve the pressure sufficiently to save the far more intricate and expensive cylinder casting itself from rupture.

The valves are of ample area and are now fitted with an improved roller lift mechanism. With one manifold arranged on each side of the cylinders, the valve stems and springs are also more accessible. Contrary to familiar practice, the upper section of the crank case is made, not of aluminum, but of a semi-steel casting, which, in addition to great strength in proportion to weight, has the advantage over aluminum that it is well adapted to hold screw threads and maintain good alignment between parts, while its strength also permits it to be formed with thinner walls. Better uni-

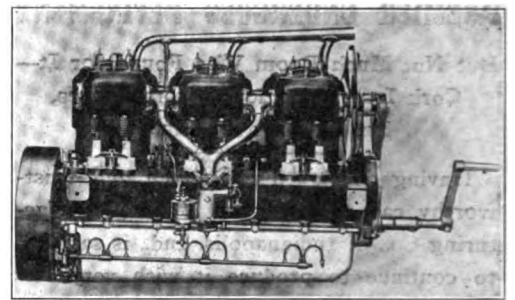
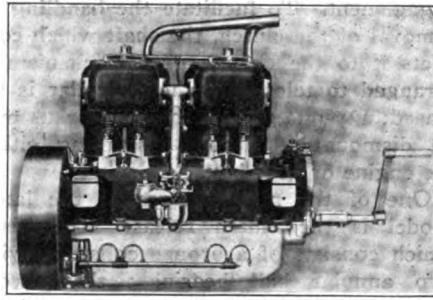
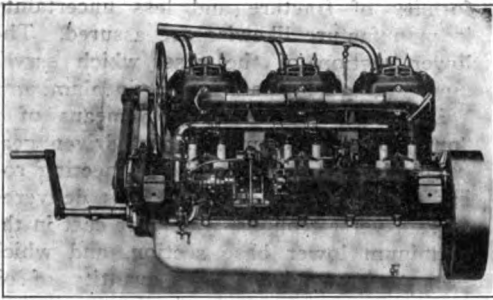
formity of fracture and less uncertainty in manufacture likewise are assured. The lower section of the case, which serves merely as an oil pan, is cast in aluminum.

Lubrication is effected by means of a "pump-over" system with gear-driven gear circulating pump. For the connecting rod and cylinder supplies, the oil is delivered to transverse troughs, which are cast in the aluminum lower base section, and which are so arranged that the quantity of oil which they retain is practically constant at all times and irrespective of gradient or other disturbing conditions. Into these troughs dip little L-tubes, which are mounted on the caps of the connecting rod "big-end" bearings, and which scoop the oil at each dip of the cranks, and deliver it to the bearing surfaces. The size of the tubes has been nicely determined by experiment until, with the proper grade of oil, they may be relied upon to deliver just the right quantity of oil to provide adequate lubrication without any tendency to cause the motor to smoke. The oil is supplied through a large cored opening in one crank-case arm, its height being ascertainable by means of a petcock. Pockets outside the main shaft bearings serve to catch the oil and conduct it to the main bearings through oil holes. The pump and the oil leads as well are thoroughly accessible.

In the matter of ignition, adherence is now placed entirely on the jump spark, the dual system, employing both magneto and batteries selectively, being installed. The magneto is mounted on the exhaust side of the motor together with the water circulating pump, both being driven by the same shaft. The carburetter is carried on the other side of the engine, and is, therefore, well separated from the ignition distributor, which, in the opinion of many authorities, may become something of a menace if permitted to have too close proximity to the fuel and gas generating system. Saving these three auxiliaries, the exterior of the motor is unencumbered with the litter of small parts and miscellany such as impaired the accessibility of many an otherwise practical machine of the early days.

A three-speed selective sliding gearset is employed, the shafts of which are mounted on annular ball bearings. The gears are arranged to run in an oil bath and provision against loss of oil through working out along the bearings is made by an ingenious provision of collars on the shafts adjacent to the bearings. Oil which starts to work outward along the shafts is carried to the peripheries of the disks on reaching them, and thrown back into the case by centrifugal force. Final drive to the rear axle is through a propeller shaft connected with the gearset and driving bevel gears on the axle by two combination sliding and universal joints, which are enclosed and packed in grease.

One of the striking features of the rear axle design, which is patented, is the stiff-



LOCATION OF CARBURETTER AND MAGNETO ON "6-60" MOTOR, AND THE "4-40"

ening of the housing by means of internal ribs. The provision renders the "bridge" amply strong without the requirement of external truss rods, which always are liable to injury when traversing rough roads. The rear end of the driving shaft is made a taper-square fit, which is of recognized permanence; the driving bevel pinion is forged integrally with its shaft, it and the driven bevel which carries the bevel differential gear being mutually adjustable through hand-hole openings in the housing, while eight anti-friction bearings support the moving parts, these and other features contributing to the reliability and durability of the structure.

Thirty-six-inch semi-elliptical springs are used in front and three-quarter scroll ellip-tics in the rear, the bottom member of which is 50 inches long and the upper one 26 inches. To preserve the leaves of the front springs from breakage at the center, where the greatest stresses must be endured, stiffening plates are employed, which, in addition to clips of the ordinary pattern, serve to prevent the leaves from bending beyond their elastic limit. In the matter of tires, some liberality is afforded, all equipment being of 36-inch diameter and mounted on Firestone demountable rims.

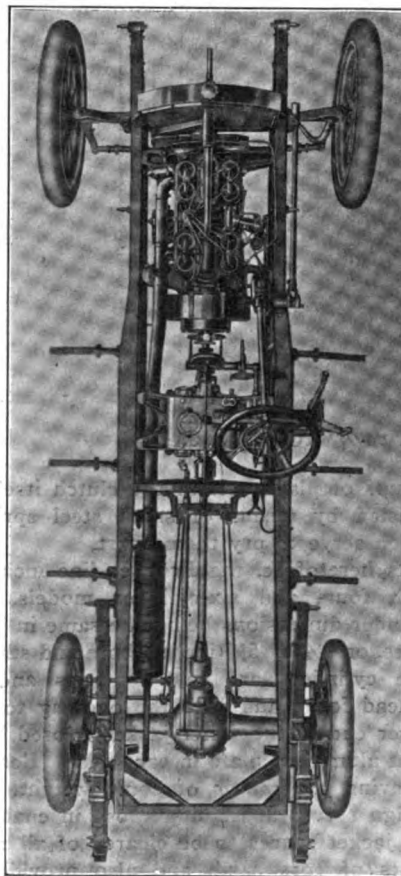
In the body equipments the closed-front patterns for both the 6-40 and 4-40 types, which, save for the motor, are much alike, are made interchangeable. The bodies designed for the six-cylinder machine are built with extra seats for two passengers, rendering them of seven-passenger capacity. Seats of the same sort likewise may be obtained for the four-cylinder car bodies, but at an extra price. The "Clubman" type of body, a close-coupled small tonneau style of structure, which was evolved last year, has been continued with suitable en-

largement of its dimensions. It is now so arranged that the passenger load comes entirely between the axles, or within the wheel base, which is to say that the vehicle

trance and egress easy, while the provision of louvres in the side of the dash enclosure, as shown in the accompanying illustration of the clubman type of car, is intended to relieve the high temperature condition which has done so much to render the otherwise satisfactory closed-front style of body inconvenient for summer use. In addition to the touring and close-coupled bodies two-passenger roadsters of both four- and six-cylinder construction are produced, which are built in conventional style in so far as the provision of a large gaso-lent tank on the rear deck, a large amount of foot room and comfortable seating are concerned.

Brazil as a Field for French Cars.

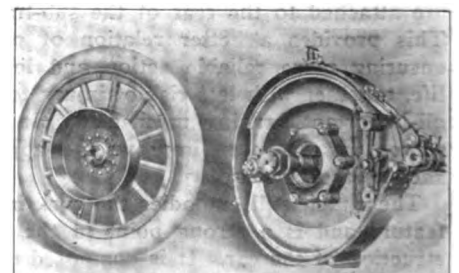
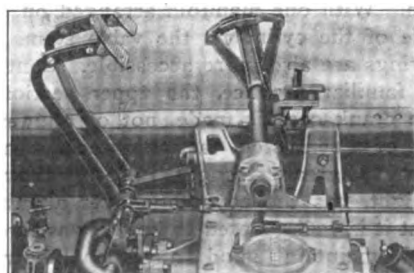
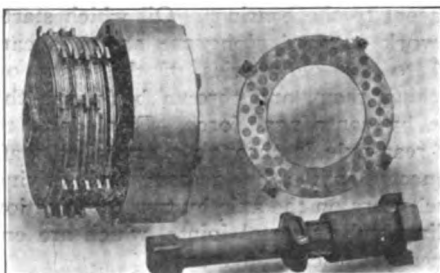
Bearing out the assertions of American automobile exporters who have experienced difficulty in introducing their products in South America on account of European competition, it is stated that the hold of the French manufacturers in Brazil rapidly is being strengthened. As against \$102,000 worth of French cars imported into that country during 1910, \$740,000 worth were disposed of during the first half of the present year alone. As showing that the market is working toward that stage of popularity where the strength of the American builders of popular priced types may be felt, however, it is reported that over 400 miles of good roads were constructed during the first six months of this year under direction of the "Department for the Peopling of the Soil" in connection with its colonization work. In connection with commercial vehicle developments it is noted that 30 cars recently have been purchased by a company which is about to introduce a daily passenger and mail service between Atibaia and Curral-linho, in the State of Minas Geraes.



PREMIER CHASSIS PLAN

is possessed of naturally easy riding qualities.

In the new bodies all doors are particularly wide, thus improving the appearance of the machines and also rendering en-



THE PREMIER PLATE CLUTCH, THE PEDAL CONTROLS AND THE BRAKE ASSEMBLY

HOW THE SPHINX DOES ITS WORK

Close-Range View of French Slide Valve Motor Now Offered Americans—
Inlet and Exhaust in One.

With the delayed introduction of the sleeve-valve motor in this country has come a general turning of eyes toward other styles of construction in which the familiar poppet, or mushroom, valve has given place

poses of both inlet and exhaust, of course, does not result in as great a saving in the aggregate of moving parts as at first might be supposed. In order to accomplish the proper movement of the valve sundry complications are introduced, but by dint of careful designing the motor has been rendered really simple—so simple, in fact, that it effects a saving of fully 20 per cent. in the total number of parts, as compared with the so-called L type of poppet valve engine, while it is said to be considerably cheaper

ment is plainly indicated in the accompanying Fig. 3, wherein the inlet and exhaust manifold openings are designated by A and B, respectively, while the ports proper are marked M and N. The valve member, C, is arranged to travel vertically in the cylinder above the point of highest piston travel, and in its full movement of less than one inch—in a motor of 100 by 140 millimeters, or 3 9/16 by 5.5 inches—it alternately uncovers first the inlet and then the exhaust ports. At the point of mid-travel both ports are

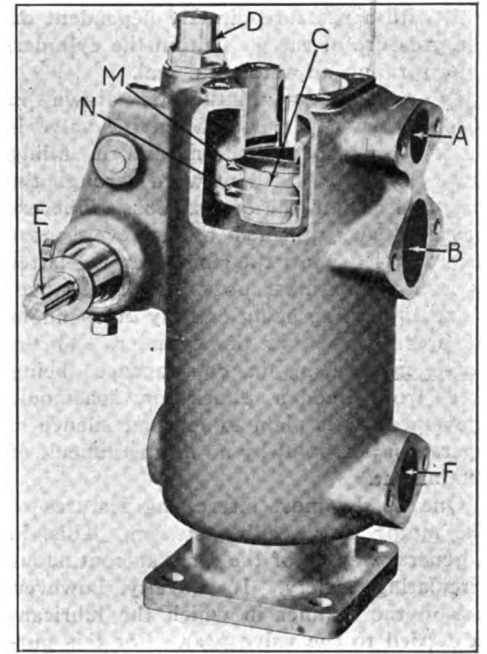
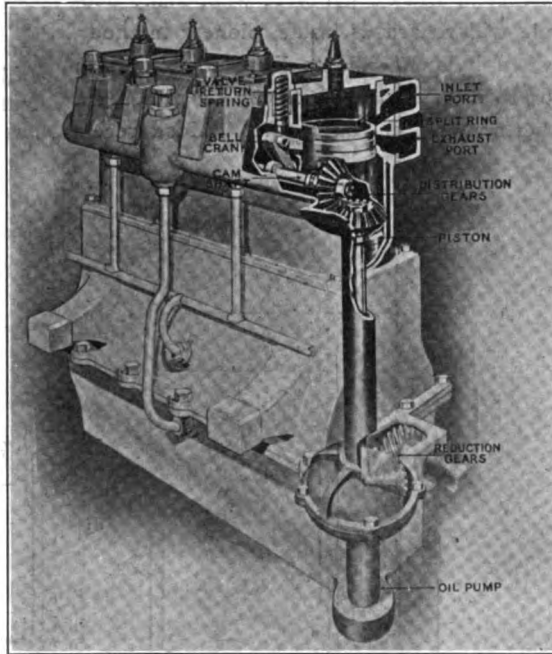
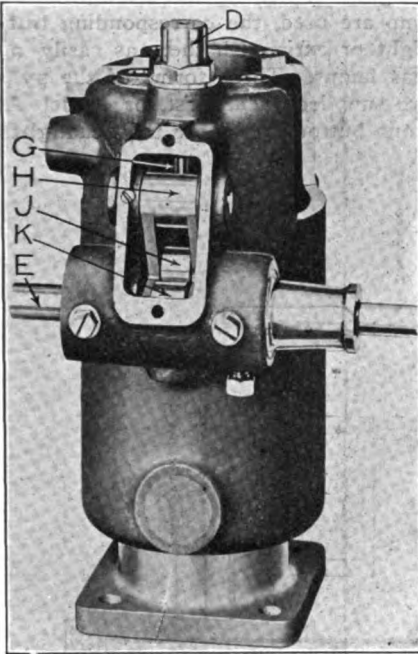


FIG. 1—SPHINX VALVE GEAR FIG. 2—DETAILS OF SPHINX MOTOR CONSTRUCTION

FIG. 3—THE VALVE AND PORTS EXPOSED

to other means for effecting the distribution of the gases. Among such engines one that, for a number of good reasons, is thought to contain great promise is the Sphinx, which recently came into the control of the Sphinx Motor Co., of New York City, but to which still clings the name Reno-Bois, by which it is known in France, where it originated. In France the corresponding type of engine already is being employed by Georges Richard, while in Germany the N. A. G. company, which is a derivative of the German General Electric Co., also is employing it. While none of the American motor car manufacturers as yet has announced its intention of adopting the Sphinx type of engine, it is well known that several of them have given it careful trial and have been favorably impressed with its properties.

While the general nature of the Sphinx, or Reno-Bois, construction already has been disclosed, the details of the engine, as presented in commercial form, just have been made public. From which it appears that while distinctly radical, such is the nature of its single moving valve part that absolute simplicity of operation is assured, together with relatively small likelihood of mishap under normal working conditions. The saving effected by the use of one valve, which is made to answer the pur-

to construct than the double sleeve valve pattern. In the way of both mechanical and thermal efficiency considerable advantages are set forth.

The cylinder of the Sphinx engine is formed with annular chambers surrounding the upper part of the bore and forming the valve ports. The openings, which best may be described as slots surrounding the cylin-

covered, and the valve is given a "dwell" of roughly two piston strokes at this point, corresponding to the periods of compression and expansion in the four-stroke cycle on which the engine operates.

The valve-operating mechanism is comprised of a horizontal cam shaft, marked E in Figs. 1 and 3, enclosed in a housing on the side of the block casting which forms the cylinder group. Above the cam shaft is a bell-crank lever, H, in each cylinder, the roller, J, at the lower extremity of which bears against the cam K, while a finger, G, forced downward by a spring housed beneath the cap, D, serves to hold the rocker arm in contact with the cam at all times. The inter-relation of the various parts is even better shown by means of the sectional Fig. 2, wherein also are shown the vertical valve motion shaft, the spiral reduction gears at its lower end, and the bevel distributing gears at its upper end.

The construction of the valve itself is shown to good advantage in Fig. 4. Essentially the valve consists of a split ring of just sufficient width to cover both valve ports when in mid-position. It is, however, cast with a central boss of circular section, which extends diametrically inward from one side and nearly to the opposite side, where the ring is split. Within the boss, which is hollow, is a socket fit-

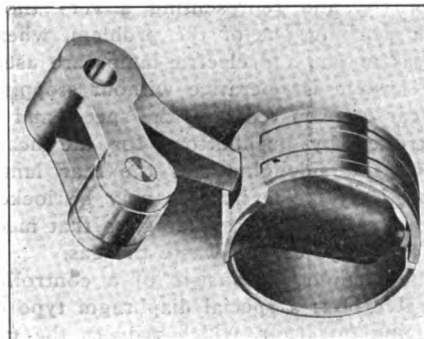
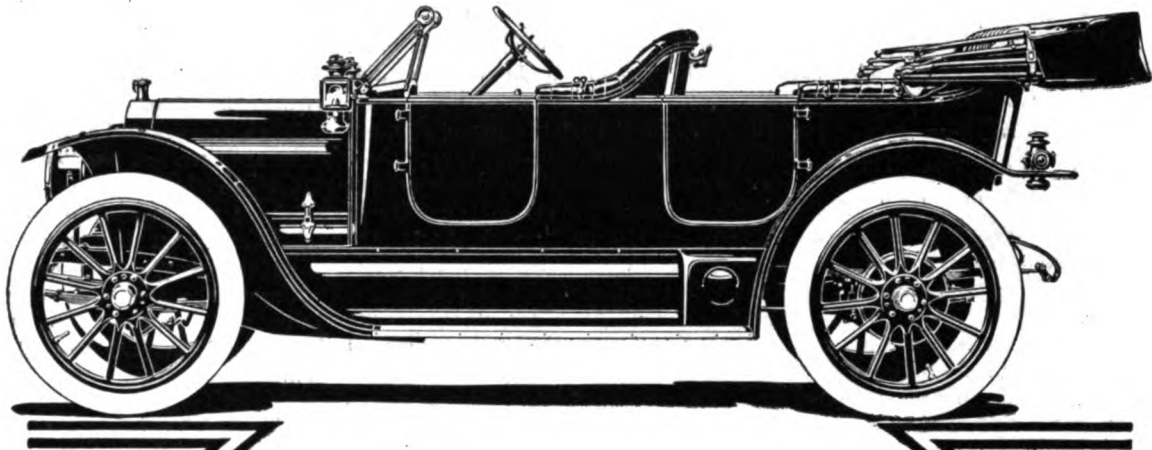


FIG. 4—THE SPHINX SLIDE VALVE

der, are bridged at one point only, where the valve itself is made discontinuous for the purpose of permitting due expansion with heat changes. From one side cored openings connect the ports with the intake and exhaust manifolds, which are of the bolted-on variety. The general arrange-

Rambler

1912—Cross Country—\$1650



IT'S 38 horse-power, five-passenger, with 120-inch wheel base and 36 x 4-inch wheels and tires. *It's long, it's low, it's roomy.* Low, with drop frame—long, with front axle set forward and straight line torpedo body. Roomy, with 27 inches from front seat to dash and 30 inches from seat to seat in tonneau. No outside door latches. Enclosed ventilated front and hooded dash. A car of exceeding beauty, finished in English Purple Lake—it's a rare shade of deep maroon—trimmed in nickel. Radiator to conform to body lines, high and distinctive in appearance. Fenders with sweeping grace. Powerful brakes. To drive this car is exhilarating. It runs like a spirited horse. You touch the throttle and it's away. It's the Rambler Cross Country and the flag-bearer for 1912.

Equipment, Bosch magneto. Fine, large, black and nickel headlights with Prest-o-lite tank. Black and nickel side and tail oil lamps; large tool box; tool roll with complete tool outfit. Roomy, folding robe rail; foot rest, jack, pump and tire kit. Top, with envelope, \$80—wind shield \$35. Demountable Wheel, less tire, with brackets and tools, \$30. Eveready automatic engine starter \$175.

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Main Office and Factory, Kenosha, Wisconsin
Branches: Boston, Chicago, Cleveland, Milwaukee, New York, San Francisco

1912

Thirty-eight H. P. Models

Cross Country, 5 pass.	\$1650
Suburban, 4 pass.	1650
Roadster, 3 pass.	1600
Sedan, 4 pass. enclosed	2500
Gotham, 5 pass. cab side Limousine	2750

1912

Fifty H. P. Models

Country Club, 5 pass.	\$2250
Valkyrie, 4 pass.	2250
Moraine, 7 pass.	2500
Metropolitan, 7 pass. torpedo	2850
Greyhound, 6 pass. torpedo	2850
Knickerbocker, 7 pass. Berline type Limousine	4200

TO KEEP CAR LOOKING LIKE NEW

Even Manner of Applying Water is an Important Factor—Real Expert Offers Some Helpful Suggestions.

That there is a right way and a wrong way to do everything under the sun is generally recognized, and it applies with equal force to the washing of automobiles. Not every one knows how to accomplish this seemingly easy task in the proper way. That not even an experienced carriage washer can be trusted to do the work right—so as to remove the last vestige of foreign matter from highly polished paintwork without harming it—has been demonstrated on more than one occasion. The results which have accrued from such experiment have proved that to be efficient an automobile washer must make a business—almost a study—of washing automobiles and nothing else.

At the factory of the H. H. Franklin Mfg. Co., in Syracuse, N. Y., there is a foreman who has spent his life in painting vehicles and in keeping automobiles looking "like new," and his remarks on how the work should be done are interesting, inasmuch as among the innumerable instructions emanating from various sources and purporting to tell the "best way," is one making plain that, while water is necessary to wash a car, even the manner of applying the water is an important factor in the case. Even the kind of water that is used has a material bearing on the ultimate results, soft water being very much better for the work than hard.

Contrary to the general impression that to be kept in the best possible condition a car should be washed as little as possible, it should be cleaned as often as necessary, he says, but qualifies his statement by adding that improper washing is responsible to a greater extent than anything else for dimming the luster and otherwise spoiling paintwork.

"Never wash a car with hot or even warm water," he says. "Cool, perfectly clean water is much better, as it hardens the varnish, and in applying water with a hose, do not turn it on full force, but let it flow gently and thereby gradually loosen the mud. A forceful pressure of water against a body finish upon which mud has dried will knock off the mud and also pieces of varnish.

"When the mud has been loosened and partially washed away a wool sponge should be used, drying off the surface with a clean chamois. Care should be taken not to rub too hard, in fact, the pressure should be no greater than the weight of the chamois itself. When the chamois gets wet it must be wrung out, but do not expect to get the car perfectly dry with the chamois. Such slight dampness as may

remain will rapidly evaporate and do no harm. Proper washing will not hurt a car. Good, clean, cold water helps harden the varnish.

"Oils or polishes for brightening are not recommended, as they are likely to leave a sticky surface to which dust will cling. If a car has been out in a rain storm it should be immediately washed and dried off, for every drop of water, as it evaporates, will leave a small deposit which makes a white spot.

"Another important factor in the proper care of the car is the garage or building in which it is kept. Such a place should never be damp, for dampness leaves what painters call 'bloom,' a kind of a dull bluish coat, which sometimes will disappear if a car is left in the sun, but more often the car has to be revarnished. Neither should the garage be too cold, for then the surface of the car may get frosty and damp, and this also produces the 'bloom.' As the car warms up the frost is liable to sweat out.

"Careful owners will not unnecessarily place their hands on the body finish of their car nor allow others to do it. It is unnecessary and generally leaves marks that can only be removed by revarnishing. The car should not be left standing in the sun if it is possible to avoid it for the reason that if the sun's heat is great enough it may soften the varnish so that dust and dirt will stick in it and thus spoil the gloss.

"Another failing which some motorists have is wiping off the mudguards with any old rag when they become dusty. This helps to spoil the luster. There is only one way to properly remove dirt and dust from the car and that is by washing. Atmospheric conditions and different locations have different effects on the life of a car's finish. In a section which abounds in clay the mud is likely to be of a very sticky consistency which will require frequent and very careful washing. A sandy country is not so bad, although in the case of a high wind, sand is likely to be beaten against the varnish, acting just like a sand blast."

"Those are the principal things about keeping the outside of a car looking new," he sums up, "but the upholstery is just as important as anything else in the good appearance of a car." The foreman of the shop where Franklin cars are upholstered has been at his trade since boyhood, too, and one of the first things to be avoided, he says, is turning the hose on the leather work.

"It is a quite common bad practice," he continues, "and is the worst thing that can be done. Many motorists take this means to clean the backs and cushions, without realizing that water hardens the leather and makes it liable to crack. A sponge and a bar of good castile soap is about the best combination for cleaning leather, and for drying, a bit of clean

waste will answer but care should be taken to see that it is free from grit."

Chicago Livery Cars Not for Negroes.

That an automobile livery company is not a public conveyer in the sense of the law, and, therefore, is not compelled to carry negroes in its machines, is the decision of Judge Fred C. Hill, of the Municipal Court of Chicago, Ill. The opinion was rendered last week in the case of Emma Stewart, a negress, who sued the Emery Motor Livery Co. for \$500 damages for its refusal to transport herself and her family. The complainant testified that by telephone she had ordered a touring car to be sent to her home, but that when the chauffeur arrived and saw that his passengers-to-be were negroes he deliberately turned the car around and went back to the garage. She furthermore claimed that this action on the part of the chauffeur hurt her standing and reputation among the neighbors, and asked that damages be awarded to her. The judge, however, could not see it that way and instructed the jury to find for the defendant.

To Preserve Tires on Stored Cars.

When storing a car for the winter, remove the tires, advises the service bureau of the United States Tire Co. in a bulletin dealing with that perennial and much mooted subject. First wash them carefully with soap and water, and then wrap them in strips of paper or cloth, adds the bulletin. Store them in a dark place which is kept as nearly as possible at a temperature of 50 degrees. If the tires are to remain on the wheels for a considerable length of time when the car is out of service, jack up the wheels and leave only about five pounds of air in each tire. This keeps the tubes in shape and also keeps them soft and pliable. When the wheels are not jacked up and the car is allowed to stand for any length of time, the tires should be kept well inflated and the car moved occasionally, so that the tires do not flatten from standing too long on one spot.

Six Months Instead of Life Sentence.

Although first reports from Toronto stated that Alexander Tracey, the Port Huron (Mich.) chauffeur, who injured several people by driving his motor car into a crowd in the Canadian city, had been found guilty of criminal negligence and had been sentenced to life imprisonment, later news show that such was not the case. The prisoner was found guilty, but was remanded for sentence until Thursday of last week. On this day the judge sentenced him to pay a fine of \$1,000, with the alternative of spending six months in jail, instead of inflicting the severest penalty provided by the Canadian law. The court stated, however, that future offenders need not expect such leniency.



996,196. Internal Combustion Engine. Charles B. Baldwin, New York, N. Y. Filed Jan. 26, 1910. Serial No. 540,136.

1. In an internal combustion engine having a crank-shaft, a piston and a piston-rod, the combination of a spark-controlling slide governed by the crank-shaft, a spring-actuated sparking device, the spring of which is adapted to be put under tension by said slide, a slide-actuated quick let-off latch governing the operation of said sparking device, a trip for said latch, and a second quick let-off latch normally out of action and controlling the release of said sparking device and having a different let-off point from said first latch.

996,205. Method of Deodorizing Exhaust Gases from Internal Combustion Engines. Leopold Bregha, Vienna, Austria-Hungary, assignor of one-half to Heinrich Kaiser, Vienna, Austria-Hungary. Filed July 6, 1909. Serial No. 506,202.

The herein described method of deodorizing the exhaust gases of burned liquid fuel, consisting in introducing the exhaust gases before their exit into the open air into an enclosed space and bringing them into contact with a mixture of calcium oxid and calcium chlorid.

996,206. Ball Bearing. Fred Eugene Bright, Philadelphia, Pa. Filed May 18, 1906. Serial No. 317,553.

1. In a ball bearing, the combination of an inner and an outer bearing ring having a ball race, balls running in the races, a resilient lubricating separator having cup-shaped ends, intermediate each two adjacent balls, and a ring to which each of said separators is connected.

996,207. Bumper for Vehicles. Colin P. Brown and John L. Uhlik, Detroit, Mich., assignors to Wentworth Manufacturing Company, Detroit, Mich. Filed July 15, 1910. Serial No. 572,209.

1. In a vehicle bumper, a bumper rail consisting of a central portion supported by the vehicle, end portions extending therefrom and spring hinges connecting the end portions with the central portions and maintaining them yieldingly in alignment therewith.

996,230. Street Sweeper. Eustace Senior Estlin, Winnipeg, Manitoba, Canada. Filed June 2, 1910. Serial No. 564,623.

1. A street sweeper comprising a box-like body provided with a transverse opening, upwardly inclined walls leading from the edges of the opening and dividing the lower part of the body into compartments, a rotary brush suspended from the box-like body and rotating within the opening in the bottom, means for rotating the brush, and conveyers mounted above the aforesaid inclined walls and adapted to receive sweepings from said brush.

996,241. Support for Wheel Rims. Edward V. Hartford, New York, N. Y. Filed Mar. 29, 1909. Serial No. 486,429.

1. In a device of the character described, in combination, a base member having a pair of laterally projecting lugs to engage the felly of a vehicle wheel, a bearing plate on the base member, a screw connected with said plate to adjust the same toward and from the base member, an arm connected with the base member, and a clamp on said arm for attaching the device to the vehicle wheel, as set forth.

996,246. Resilient Tire Seating Rim for Vehicle Wheels. John G. Hodgson, Maywood, Ill. Filed Mar. 21, 1910. Serial No. 550,739.

1. In a resilient tired wheel, the combination with a metal band on the wheel, of a tire seating rim having a tire engaging flange thereon at one side, and a removable ring having an opposing tire engaging flange, said metal band and removable ring having two sets of interengaging double cone or wedge faces, and connecting means for clamping together said metal band and said removable ring, substantially as specified.

996,247. Tire Protector. Edmund C. Hoelsche, South Chicago, Ill. Filed May 14, 1910. Serial No. 561,377.

A tire protector comprising a plurality of scales forming a complete investment of the tire and arranged in transverse parallel series, with the scales of one series in staggered relation to the scales of the adjacent series, and each series overlapping the succeeding series, each of the scales having a longitudinal slot at one end and ears at opposite sides, and the scales of one series being connected to one another and to the scales of the adjacent series by having the ears of adjacent scales of one series passing through the slots of the overlapping end portions of the scales of the adjacent series.

996,299. Resilient Tire. Jacob Thissen, Bangor, Pa. Filed Mar. 22, 1910. Serial No. 551,016.

1. A tire embodying a rim, compression springs mounted in said rim and projecting outwardly therefrom in a radial direction, blocks secured upon the outer ends of said springs and arranged in a circumferentially extending series with spaces between, a plurality of segmental plates encircling the blocks, the plates being secured at one end to the respective blocks, and overlapping the ends of the adjacent block, and the ends of said plates being chamfered and overlapping each other for a slight circumferential movement, and a casing surrounding said plates and secured to the rim.

996,315. Suspension Wheel. Herbert Clifford, New Haven, Conn. Filed Nov. 22, 1910. Serial No. 593,637.

1. A suspension wheel comprising a felly, hub and spokes, blocks secured at equidistant points to said felly between the spokes, said blocks formed with radial slots, a rim-band formed with bends corresponding in number to the number of blocks, a tire carried by the rim-band, and yokes engaging with the said blocks and connected with said band at said bends.

996,318. Double Friction Clutch. Paul Daimler, Unterturkheim-Stuttgart, Germany. Filed July 7, 1910. Serial No. 570,706.

1. A double friction coupling, comprising a shaft, a friction element provided with two oppositely arranged friction faces and keyed on said shaft, a second shaft, a second friction element mounted on and rotating with said second shaft while capable of sliding axially into engagement with a face on the first mentioned friction element, a third friction element mounted on and rotating with said second friction element while capable of sliding axially into engagement with the other face on the first mentioned friction element, elastic means for normally holding said second and third mentioned friction elements in engagement with the faces on the first mentioned element, and externally operated toggle levers connected to and outside said elements for moving said second and third mentioned elements uniformly in opposite directions against the influence of said elastic means so as to disengage said elements.

996,319. Friction Clutch. Paul Daimler, Unterturkheim-Stuttgart, Germany, assignor to the firm of Daimler Motoren-gesellschaft, Unterturkheim-Stuttgart, Germany. Filed Nov. 15, 1910. Serial No. 592,416.

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POSTAL BRINGS 1912 CATALOG AND SPECIAL AGENCY PROPOSITION. WRITE.

MICHIGAN BUQQY COMPANY, Kalamazoo, Mich.
Largest Makers of Pleasure Vehicles in the World.

1. A friction cone clutch comprising, in combination a shaft, a friction element fixed on said shaft and having a conical friction surface, a second shaft axially aligned with said first shaft, anti-friction devices intermediate said shafts, a second friction element splined on said second shaft and having a conical friction surface, means for normally holding said friction surfaces in engagement, a fixed part on said second shaft and toggle lever mechanism operatively connected between said fixed part and said second friction element and operating to disengage said friction surfaces.

996,326. Wind Shield. Thaddeus Galvin, Detroit, Mich., assignor to Detroit Steering Wheel & Wind Shield Company, Detroit, Mich., a Corporation of Michigan. Filed Dec. 27, 1909. Serial No. 535,164.

1. In a windshield, the combination with a transparent panel, apertured in proximity to the frame, of apertured clamping plates upon opposite sides of the panel registering with the opening therein and bearing at their outer ends against the frame, a bushing of yielding material within the panel opening, cushioning material between each clamp and the panel, and a connection between the clamps projecting through the bushing.

996,339. Internal Combustion Engine. Edvard Hoiland, Auckland, New Zealand. Filed Apr. 14, 1910. Serial No. 555,395.

1. In an internal combustion engine, a cylinder formed with a number of alternately arranged inlet and exhaust ports, a piston, a sleeve formed with a single set of ports adapted to coincide alternately with the inlet and exhaust ports of said cylinder, and means for reciprocating and oscillating said sleeve in said cylinder.

996,351. Pneumatic Vehicle Tire. Grant Lambright, Newark, N. J., assignor of one-half to Frank A. Magowan, New York, N. Y. Filed Sept. 25, 1907. Serial No. 394,431.

1. A pneumatic tire for vehicles comprising a cover having a solid tread which is materially thickened integrally only along its middle portion so that the interior contour of the tread is cordiform in cross-section, a series of flexible inextensible metallic cables extending around the tread within said thickened portion; said cables separated one from another and embedded in the rubber of the tread and vulcanized thereto.

996,258. Pneumatic Pressure Gage. Ole Olsen, Fruitvale, Cal. Filed Oct. 6, 1909. Serial No. 521,391.

1. A pneumatic pressure gage comprising inner and outer tubes, said outer tube inclosing the lower portion of the inner tube and having an opening in its side through which the inner tube is exposed and having graduations on its side adjacent said opening, the inner tube being transparent and closed at one end and the outer tube having a removable cap at the upper end into which the upper end of the transparent tube extends, a plunger operating within the inner tube and against which escaping fluid acts to form a pressure in the portion of said tube above the plunger, said graduations indicating the amount of pressure, and an elastic sleeve fitted in the lower end of the exterior tube and serving to form a tight joint with a part to which the gage is fitted.

996,378. Changeable Compression Engine. Elihu Thomson, Swampscott, Mass., assignor to General Electric Company, a Corpo-

ration of New York. Filed Sept. 11, 1907. Serial No. 392,274.

1. The combination with a cylinder of an internal combustion engine, of an auxiliary compression chamber communicating with the compression space of the cylinder, a conduit, a valve controlling communication between the conduit and the chamber, means for actuating said valve, a second valve for connecting the chamber with and disconnecting it from said space, a stem or spindle for the second valve that is mounted in the first valve for movement relative thereto, and a manually actuated device acting on said stem or spindle to open and close the second valve independently of the first valve.

996,384. Driving Wheel. John B. Wiard, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Jan. 11, 1909. Serial No. 471,612.

A driving wheel comprising a spider having arms separated at their outer ends, a loose rim surrounding said spider and having a cylindrical inner surface, friction shoes engaging substantially the entire width of said cylindrical surface and fitting between the outer ends of said arms, clamping plates fastened to said arms, holding said rim in place and forming guides for said friction shoes, and adjustable springs forcing said shoes outwardly.

996,410. Spark Plug. Fred E. Harpst, Houston, Tex. Filed Oct. 27, 1910. Serial No. 589,399.

1. In a sparking plug, a shell provided with a bore extending therethrough and having an annular chamber at one end spaced from and surrounding said bore, an insulator extending into said bore and having its inner end in spaced relation to the bore and terminating adjacent said chamber whereby air entering the chamber will impinge upon the insulator, a projection on one side of said shell opposite said annular chamber, said projection having a hollow body communicating with said chamber, a check valve held in said projection, and sparking terminals supported by said insulator and the inner end of the shell.

996,446. Rod Packing. Charles C. Anderson, St. Joseph, Mo., assignor to Uhler Motor Co., St. Joseph, Mo. Filed Dec. 16, 1910. Serial No. 597,703.

1. Metallic packing including a cylindrical member having an inturned flange at one side providing a stuffing box, a gland fitting in the open side of the stuffing box and having a peripheral groove and engaging the inner wall of the stuffing box, and a spring washer carried within the stuffing box and being interposed between the flange and the gland whereby the latter is yieldingly extended.

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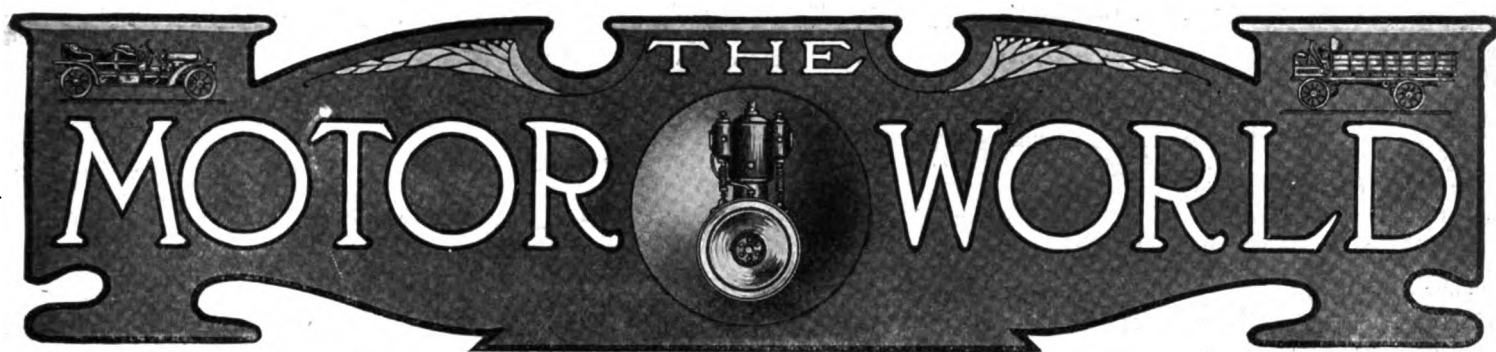
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SIMMS
MAGNETOS

**ANDERSON GETS EDISON BATTERY**

Detroit Manufacturer Secures Exclusive Rights for Use in Pleasure Cars—European Market to Be Invaded.

Although it did not appear probable that any one manufacturer would be able to obtain the exclusive rights to the use of the Edison battery in his particular field, the Anderson Electric Car Co., of Detroit, makers of the Detroit car, has effected a coup of the sort, the Anderson company and the Edison Storage Battery Co. having entered into an agreement of the sort which will endure at least during 1912.

In order to consummate the contract, however, the Anderson people agreed that from the quota of batteries reserved for them the Edison company shall be permitted to supply the wants of F. R. Bailey & Co., of Amesbury, Mass., and Healey & Co., of New York, Mr. Edison personally having promised principals of those concerns that he would take care of their demands, which, however, are not expected to be very heavy. Among other things, the contract guarantees that the Edison battery supplied the Anderson people will be capable of developing its rated capacity for a period of four years.

It is understood that W. C. Anderson, president of the Anderson Electric Car Co., went abroad, met Mr. Edison in Berlin while the "wizard" was abroad this summer and there secured the influence that made possible the contract, which is sure to set the electric vehicle trade by the ears.

So far as commercial vehicles are concerned, however, the Edison battery will remain on the open market.

While abroad Messrs. Edison and Anderson met John F. Monnot, a mining engineer of American birth, who now resides in Europe, and practically consummated plans which will result in the invasion of the foreign markets by both the Edison battery and the Detroit electric car. Monnot al-

ready has secured the European agency for the latter and is in a fair way of obtaining the representation of the Edison battery in at least a considerable portion of Europe. It is his purpose to open depots in both London and Paris.

Another Durant Company Organized.

For the purpose of operating the plant of the Flint Wagon Works, in Flint, Mich., which, as the Motor World stated three weeks ago, had been acquired by interests representing W. C. Durant, there has been organized the Little Motor Car Co., capitalized at \$1,200,000, of which \$500,000 is preferred stock. The incorporators of the company are W. H. Little, who was Durant's chief lieutenant, first in the Buick company and later in the General Motors organization; C. M. Begole and W. S. Ballenger, president and secretary-treasurer, respectively, of the Flint Wagon Works, which concern has been manufacturing the Whiting car. As the Little Motor Car Co., however, it will produce both four-cylinder and six-cylinder cars.

Board of Trade Admits Six Applicants.

The Automobile Board of Trade has added six new members to its roll, viz.: The Garford Co., Elyria, O.; Warren Motor Car Co., of Detroit, Mich.; James Cunningham Sons Co., of Rochester, N. Y.; Rapid Motor Vehicle Co., Pontiac, Mich.; Reliance Motor Truck Co., Owosso, Mich.; Marquette Motor Co., Saginaw, Mich. They are the first new members to be admitted since the Board of Trade succeeded the old A. L. A. M.

Timken-Lindsay Litigation Settled.

The differences and litigation that have existed for several years between the Timken companies and Lindsay and Harmon, of Indianapolis, regarding the Lindsay patents on rear axle constructions, under which the Timken companies have been operating, have been amicably settled and adjusted; the Timken-Detroit Axle Co. retains complete shop rights under the patents.

GRANT PATENT BOBS UP AGAIN

Supreme Court Agrees to Review Good-year Case—Will Decide on Customer's Immunity From Prosecution.

Although in April last the Supreme Court of the United States declared the patent on the Grant solid tire, No. 554,675, issued February 18, 1896, to be a valid patent, not even that decision served to end the prolonged and many-sided litigation in which the patent has been involved for some thirteen years.

Before the Supreme Court had handed down its ruling the patent similarly had been held valid by several United States circuit courts, but in the Indiana circuit and also in the Ohio circuit, where the Consolidated Rubber Tire Co., the owners of the patent, and most of the alleged infringing tire manufacturers are located, it had been declared invalid, and such are the peculiarities of law that not even the ruling of the highest tribunal of the nation served to give the patent standing in these districts.

As a result the several tire manufacturers in Ohio and Indiana have enjoyed immunity not shared by their competitors located in other circuits, and they have claimed immunity not only for themselves but for their customers doing business in these other circuits. One of them, the Diamond Rubber Co., tested the law in the New York Circuit Court in Utica only last July and lost the case. But several others, among them the Goodyear Tire & Rubber Co., pursued a different policy, and when the Consolidated company sued their customers in other States they brought counter-suits in the Ohio district and succeeded in obtaining injunctions restraining the owners of the Grant patent from prosecuting their actions against the Goodyear patrons; indeed, the court threatened the Consolidated people with punishment for contempt if further such injunction pro-

ceedings were instituted against customers of the Goodyear company.

An application for a writ of certiorari which would bring the Ohio decision into the Supreme Court of the United States for review had been denied by the Supreme Court, but the application of the Diamond company to review the proceedings of the New York court by certiorari was subsequently allowed, and in this way the case first reached the Supreme Court, there being no appeal to the Supreme Court or no chance to get into that court on the decision affecting a patent as a matter of right, but only by grace of the court. The Supreme Court duly upheld the validity of the Grant patent, and later, as also has been stated, the United States Circuit Court in Utica, N. Y., also upheld the patent on all points and ruled that no one has the right to make, sell or use infringing tires in that circuit.

Pressing their advantage, the owners of the Grant patent brought suit against one Dougherty, a Goodyear customer, in New York City, and Goodyear promptly applied to the Circuit Court in Ohio and secured an injunction restraining the Consolidated company from prosecuting that suit. The latter then petitioned to the Supreme Court for a writ of certiorari to review the case and correct the court below, and last week the highest court granted the writ and in due course the case will come to trial. The result cannot fail to be of general and far-reaching importance, and will settle for all time whether the immunity granted to a manufacturer in one circuit extends to his customers in other circuits and serves to protect them from legal proceedings of this nature.

A second writ of certiorari filed by the Consolidated company asked that the original decision in the Ohio circuit which held the Grant patent invalid—it was rendered in 1902—be set aside on the ground that the recent decision of the Supreme Court in the case of the Consolidated company against the Diamond Rubber Co. superseded and overruled the Ohio decision. The Supreme Court, however, denied this application at the same time last week that it consented to review the other case involving the immunity of customers.

Chalmers on N. A. A. M. Executive Board.

At the November meeting of the National Association of Automobile Manufacturers, which occurred in New York yesterday, Hugh Chalmers, of Detroit, was elected a member of the executive committee to succeed C. C. Hildebrand, who previously represented the Chalmers Motor Co. M. L. Downs, of The Autocar Co., was made a member of the association's commercial committee, and the L. J. Bergdoll Motor Co., of Philadelphia, which had been disqualified from participation in sanctioned shows because of having exhibited at the so-called "independent" show in Grand Central Palace in New York last

January, had its disabilities removed and was restored to good standing so far as shows are concerned. The Bergdoll company, therefore, will be enabled to exhibit at the forthcoming N. A. A. M. show at the Palace.

Frank Briscoe Removes to New York.

Frank Briscoe, who as president of the Brush Runabout Co., of Detroit, made the Brush runabout famous, has become a New Yorker, having been appointed chief of the designing department of the United States Motor Co., with headquarters at 1 West Sixty-fifth street. In addition to being president of the Brush company, Briscoe was also head of the Briscoe Manufacturing Co. and treasurer of the Alden Sampson Manufacturing Co., all of which positions he relinquishes. They will not be filled, as his removal to New York is merely a further step in the concentration which is a part of the policy of the United States Motor Co. Eventually all of its executive and department officials will be located in New York and its several plants will be left to the direction of factory managers.

Grinberg's Rubber Company Goes Broke.

As a result of an involuntary petition in bankruptcy against the Hayes Rubber Co., 57 Warren street, New York, S. Lawrence Miller has been appointed receiver of the concern. Its liabilities are \$20,000 and its assets \$1,000. Among its debts is one of \$683 for rent. The company, which was incorporated in February, 1908, with capital stock of \$3,000, did a cut-price business in automobile accessories and bicycle supplies, and attracted interest chiefly because of the fact that its financial sponsor was David Grinberg, of the picturesque firm Morris & Grinberg, which usually trades as the Manhattan Storage Co.

Cleburne Gets a Factory Through Luck.

Having secured sufficient support, H. E. Luck, of Cleburne, Tex., has completed the organization of the Cleburne Motor Car Manufacturing Co., which will engage in the manufacture of automobiles in that rather remote little town in Texas. It will be chiefly an assembled car, incorporating a notion or two originated by Luck himself. The board of directors of the company are as follows: J. E. Poindexter, Brown Douglass, George A. McClung, S. B. Norwood, T. N. Brown, Otho L. Bishop, Robert E. Gatewood, A. V. Barber, Judge J. M. Moore. R. H. Crank will be secretary.

Nyberg Takes Title to Anderson Plant.

Having paid the last \$10,000 instalment on the total purchase price of \$40,000 for the plant of the Ryder-Lewis Motor Car Co., in Anderson, Ind., Henry Nyberg, of Chicago, who for several months has been operating the plant under the style the Nyberg Automobile Works, has obtained

formal and complete title to the property. It was sold to Nyberg in April last by the receiver for the Ryder-Lewis company, which failed for \$180,000. The receiver believes that the Ryder-Lewis creditors will obtain 10 or 15 per cent. of their claims.

Reeves to Act as Western Supervisor.

For about three weeks Alfred Reeves, general sales manager of the United States Motor Co., will be the company's western supervisor also and will circulate in the territory radiating from Kansas City. He will perform the duties previously carried out by W. S. Hathaway, who recently resigned, and will serve as western supervisor only until that position is permanently filled. He then will return to his duties in New York.

Darracq Retires from Business Life

A. Darracq, the well-known French automobile designer and president of A. Darracq & Co., Suresnes, France, has retired from active business. Ever since the big factories were purchased by an English syndicate his activities had been curtailed until this curtailment resulted in his complete withdrawal from the company. An engineer named Garrard has been elected president of the concern.

Hupmobile Runabout to be Continued.

Reports that the Hupp Motor Car Co., of Detroit, purposed discontinuing the manufacture of the famous little Hupmobile runabout and concentrating on the touring car are authoritatively denied. Charles D. Hastings, general manager of the company, states that "the runabout will continue to enjoy the same large part in our manufacturing plans that it occupies at present."

Fire and Water Damage Detroit Factory.

The factory of the Phipps-Grinnell Co., manufacturers of electric automobiles, at 16 Atwater street, Detroit, Mich., was visited by fire on Tuesday morning, October 31, and damaged to the extent of \$30,000. Spontaneous combustion in the varnishing room is believed to have started the blaze. Most of the damage was caused by flooding the building with water.

Marburgs Open a Branch in Detroit.

Marburg Brothers, importers of the Mea magneto, have opened a branch office in Detroit, Mich., of which R. J. Taylor will be the manager. In addition to the Mea magneto, Marburg Brothers are importers of the S. R. O. ball bearings, and they have also completed arrangements for the agency of the Marburg-Hagen springs.

To Enlarge the Rauch & Lang Plant.

The Rauch & Lang Carriage Co., manufacturer of the R. & L. electric, has placed contracts for the erection of a four-story addition to its plant on West Twenty-fifth street, Cleveland, Ohio.

COURT RULES ON PRICE CONDITION

**Mosler Secures Injunction in One Suit;
Loses the Other—Wholesaler's Sales
Did Not Violate Stipulation.**

That the only conditions attaching to the sale of a patented article are those which are expressly stipulated by the patentee, is the substance of a decision handed down by Judge Noyes in the United States Circuit Court for the Southern District of New York in the case of A. R. Mosler & Co. vs. the Motor Car Equipment Co., of New York. Mosler sued both the Equipment company and the E. J. Willis Co. for

In denying the injunction in the Motor Car Equipment case, Judge Noyes said:

"The notice in question restricts the price at which the patented article is to be resold, 'when sold to the public.' The defendant appears to have sold at a lower price only at wholesale, and the question is not free from doubt whether in case its retail price is maintained there is any violation of the condition. Indeed, in my opinion the question makes the case too doubtful to warrant the issuance of a preliminary injunction. Consequently it is not necessary to determine whether in the present state of the law, it can be regarded as settled that a patentee can fix the price at which the patented article is to be sold by persons not in privity with him and

ENGINEERS' EXPEDITION NOW AT SEA

**S. A. E. Party Sails to See London Show
and to Meet Foreign Kindred—De-
parture Marks an Epoch.**

Not merely stretching hands across the sea but sailing across the sea and carrying their hands with them, 60 members of the Society of Automobile Engineers departed yesterday, 1st inst., aboard the great Cunard liner Mauretania, to London, where the Americans figuratively and literally will link arms and exchange opinions with their British kindred comprising the Institution of Automobile Engineers. On the other



SOME MEMBERS OF THE S. A. E. EUROPEAN "EXPEDITION" GROUPED ABOARD THE MAURETANIA

infringement of the patents covering the Spitfire spark plug, the alleged infringement consisting of the sale of plugs at less than the price named on the packages in which they were contained.

In defense, the Motor Car Equipment Co., set up that not only had it purchased the plugs direct from Mosler & Co., but that it had not violated the printed conditions of sale which required that the price be maintained "when sold to the public." The Equipment company sells only to the trade. Accordingly Judge Noyes denied the application for the preliminary injunction which Mosler & Co. sought. The Willis company, on the other hand, had sold the plugs to the public at retail and "acknowledged the corn" by consenting to the issuance of injunction against it, the usual payment of damages being waived by the complainant.

treat as infringers those not maintaining such price."

Almost immediately following this decision, Mosler & Co. filed another suit against the Motor Car Equipment Co., alleging violation of its patents by the sale of infringing plugs.

Owosso Decides to Discontinue Trucks.

The Owosso Motor Car Co., of Owosso, Mich., which for two years has been more or less engaged in the manufacture of a light motor truck, has decided to go out of business. Formal action to this end was taken at a meeting of the stockholders on Thursday last. Several days preceding this decision, James P. Waters, superintendent of the company, instituted suit for \$4,000, alleging breach of contract in that the company had dispensed with his services in violation of an agreement.

side, the S. A. E. party will be joined by several members who already are there.

The occasion is a memorable one and marks a distinct epoch in the automobile history of the two nations. It is something more than an exchange of international courtesies. It is an international meeting such as has marked the progress of few industries and one which a year ago would have seemed highly improbable, so far as the automobile trade of the two countries is concerned. The small idea, which grew out of the lone visit of an English editor to the S. A. E. meeting in this country last June, expanded in a fashion that scarcely dared be hoped for. The size of the party that sailed to London yesterday far exceeded original anticipations and constitutes a representative group. It includes not only Henry Southcr, president of the S. A. E., and Howard

E. Coffin, former president of the society, but W. E. Metzger, the head of the National Association of Automobile Manufacturers, and, almost as a matter of course, Coker F. Clarkson, secretary and main-spring of the S. A. E., who chiefly is responsible for the visit, as he is responsible for giving the organization real life and real purpose.

Special honors, privileges and concessions on board ship are to make the six days' voyage especially pleasant for the S. A. E. members. They not only will have a headquarters and meeting room on the boat but will have a space reserved on the sunny side of the deck for their steamer chairs, will have a privileged position in the dining salon, and a host of extra attentions of one sort and another to make them happy and to fill in the odd moments between times.

In London, on the 7th inst., they will be met at Paddington Station by the president and other officers of the Institution of Automobile Engineers. The headquarters in Europe in connection with the visit are St. Ermins Hotel, St. James Park, London, S. W., and the Institution of Automobile Engineers, 13 Queen Anne's Gate, Westminster, London, S. W.

Three days will be available for visiting the Olympia show, and on the 8th inst. the joint session with the Institution engineers takes place, at which Howard E. Coffin, former president of the S. A. E., will deliver an address on "Chassis Design." On the following day the Institution will give an entertainment for the Americans. The program for the next four days provides a busy round of sightseeing and visiting among factories in Birmingham, Coventry and other places, and includes a dinner given by the British engineers. London's biggest taxicab garages will be inspected on the 14th, and after two days' visiting in Newcastle-on-Tyne, the Americans will see a special series of races and contests arranged for their benefit at the Brooklands track on the 16th.

Two days later they will "invade" France, where R. W. A. Brewer, an English consulting automobile engineer, who is a good linguist, will act as a guide to the party. The factories to which they will be given a welcome will include such famous establishments as Panhard et Levassor, Delaunay-Belleville and the like, and possibly the Clement and DeDion plants. Automobile clubs, museums, testing laboratories and similar institutions in both England and France are preparing to open wide their doors for the reception of the visitors.

It is expected that the trip of the S. A. E. party will be the first of an interchange of visits of American and European engineers and that it will open the way for international co-operation in the solution of technical problems in common, relating to the construction and use of pleasure and business vehicles.

The party that left New York on Wednesday is constituted as follows;

Henry Souther (and wife), president Society of Automobile Engineers; Howard E. Coffin (and wife), past president of the S. A. E. and vice-president Hudson Motor Car Co., Detroit, Mich.; H. F. Donaldson, member of the council and chairman committee on arrangements; A. J. Slade, consulting engineer and member committee on arrangements; Wm. E. Metzger, president National Association of Automobile Manufacturers and secretary and treasurer Metzger Motor Car Co.; Coker F. Clarkson, secretary Society of Automobile Engineers; G. R. Wadsworth, assistant to president Peerless Motor Co.; Walter C. Baker (and wife), American Ball Bearing Co., Cleveland, O.; Hugh Kerr-Thomas, assistant manager Pierce Arrow Motor Car Co.; T. R. Thomas, mechanical engineer, Thomas & Thomas, Racine, Wis.; D. G. McDiarmid, superintendent and designer C. P. Kimball & Co.; W. G. Wall, chief engineer National Motor Vehicle Co.; William Kelly, vice-president and engineer Metzger Motor Car Co.; Horace T. Thomas, chief engineer Reo Motor Car Co.; Robert A. Lloyd, vice-president General Vehicle Co.; C. H. Foster, president and general manager Gabriel Horn Mfg. Co.; J. B. Hull, patent attorney and vice-president Perfection Spring Co., and president Goby Engine Co., Cleveland, O.; H. W. Aldeh, chief engineer Timken Detroit Axle Co.; Arthur B. Cumner, maintenance engineer Autocar Co.; Ralph L. Morgan, chief engineer Morgan Motor Truck Co.; Albert Champion (and wife), first vice-president and general manager Champion Ignition Co., Flint, Mich.; W. P. King (and wife), vice-president, treasurer and sales manager Aluminum Castings Co., Cleveland, O.; Aldon L. McMurtry (and wife), engineer Gray & Davis; F. S. Duesenberg, assistant manager Sears Automobile Co.; H. G. Stutz, engineer and factory manager Stutz Auto Parts Co.; E. A. DeWaters, assistant engineer Buick Motor Co.; F. C. Avery, gas engineer Avery Portable Lighting Co.; A. R. Miller, manager of sales Barthol, Daly & Miller; B. B. Bachman, assistant engineer Autocar Co.; John G. Wood, general manager Empire Motor Car Co.; Ralph H. Rosenberg, mechanical engineer Kinnear Mfg. Co.; Robert T. Hendrickson, engineer Lauth Juergens Motor Co.; Charles J. Moore, factory manager Packard Motor Car Co.; H. D. Church (and wife), commercial vehicle engineer Packard Motor Car Co.; J. S. Bretz, president J. S. Bretz Co.; George W. Kerr, body designer and superintendent of coach work, Stevens Duryea Co.; Bert Morley, Kelsey Wheel Co.; C. J. Metzger, general sales manager Woods Motor Vehicle Co.; H. J. Hayes, Hayes Mfg. Co.

The following will join the party abroad:

A. J. Moulton, 7 Rue Scribe, Paris, France; A. Ludlow Clayden, chairman English committee on arrangements, editor Automobile Engineer, London, England;

Fritz Loeffler, Betriebsingenieur, Zellstoff-fabrik, Waldorf, Mannheim, Germany; Alfred J. White, managing director White & Poppe, Ltd., Coventry, England; Marcel DeJarney, technical manager British Motorcab Co., London, England; Rene M. Petard, European manager Mitchell Lewis Motor Co., Paris, France; Charles L. Lawrence, 6 Rue de Bellechasse, Paris, France; Arthur Ziltener, Wessen, St. Gallen, Switzerland; Louis C. Marburg, Marburg Bros., New York; Adolph Rosner, experimental department Locomobile Co. of America; David R. Wilson, Ferro Machine & Foundry Co., Cleveland, O.; C. E. Davis (and wife), Warner Gear Co., Muncie, Ind.; A. J. Myers, 5 Villa Victor Hugo, Paris, France; Hugh Miller, Warner Gear Co., Muncie, Ind.; Walter C. White, The White Co., Cleveland, O.

Changes Among Prominent Tradesmen.

H. W. Moore has been appointed treasurer of the Mais Motor Truck Co., of Indianapolis. He formerly was cashier of the Capital National Bank of that City.

Frank W. Poche, formerly secretary of the Motor World Publishing Co., has purchased Automobile Topics. The paper will be issued by the Motor Trades Publishing Co., of which Roche will be president.

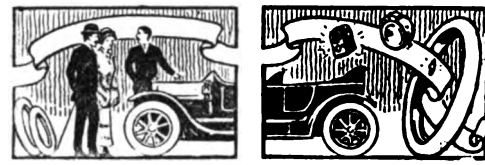
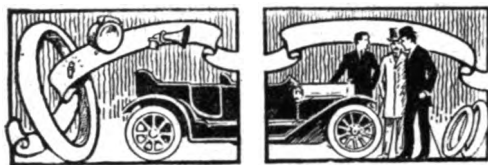
Dayten E. Keith has been appointed manager of the Ford Motor Co.'s Indianapolis branch. He succeeds R. F. Bartol, who relinquished the office to go into business for himself in Anderson, Ind., where he will continue to sell Ford cars.

Floyd A. Allan has been appointed assistant secretary-treasurer of the Buick Motor Co., Flint, Mich. He has been connected with the Buick establishment for some five years, serving as buyer for a time and latterly as assistant to the general manager.

Montgomery Hallowell, advertising manager for the United States Motor Co., has resigned that position to join the H. E. Lesan Advertising Agency, which handles the big company's advertising accounts. He will be succeeded by Gridley Adams, who recently was added to the United States Motor's publicity staff.

Having disposed of his interest in the Horseless Age, Fred J. Wagner has resigned the presidency of the company which published it. Wagner will devote himself to a Long Island farm which he possesses, but will continue to serve as the A. A. A. official starter, which position he has filled for many years, and thus will not be wholly lost to the automobile interests.

D. C. Fenner, sales manager of the Alden Sampson Truck Division of the United States Motor Co., has resigned that position and joined the recently organized International Motor Co., which will market the Saurer and Mack trucks. Morris Grabowsky, former head of the Alden Sampson manufacturing department, will succeed to the vacancy created by Fenner's resignation.



Harry Reading, of Richmond, Texas, has sold his garage to G. W. Schwatzer.

William Rober, has sold his garage at Salem, S. D., and retired from business.

P. J. Clark last week broke ground for a garage on Flensburg avenue, Dalton, Mass.

Nathan C. Lane has broken ground for the new garage and repair shop in Bristol, Pa.

William Nelson, a blacksmith of Spicer, Minn., has added a garage and repair shop to his smithy.

Robert E. Thomas and Walker Williams have formed a partnership and opened a garage on Broad street, Riverton, N. J.

J. H. Tufts, a livery man of South Haven, Minn., finds the livery business too slow and accordingly has added a garage to his stables.

The old Park Theater building in Joliet, Ill., is being remodeled into a garage. Richard Hill will occupy it when the work is completed.

The A. C. Fuge Hardware Co., of West End, Wis., has branched out in the automobile business. It has taken the agency for Buick cars.

G. W. Schwartz, of Breunham, Texas, has purchased the garage of Harry Reading, in Richmond, Texas. He will continue the business under his own name.

The Fiat Automobile Co. of Rhode Island has opened a large service building at 26-28 Snow street, Providence, R. I. It is under the management of J. K. Crawford.

Tiner Nelson, of Grand Meadow, and Cornelius Viss, of Austin, Minn., have purchased the entire business of the Thoen-Bradley Automobile Co., of the latter place.

Edward L. Warnecke, of Hampton, Ia., has opened a garage at Sterling, Ill. It is located at the corner of Fourth street and Avenue A, is 50 x 100 feet and two stories high.

H. N. Stewart, of Waterloo, Ia., has formed the Stewart American Motor Car Co., with headquarters at his home town. He will distribute American cars in his territory.

W. J. Kempf, of Forman, N. D., has removed to Graceville, Minn., where previous to his arrival no garage existed, and supplied the deficiency by opening one in the Ebert building.

F. R. Lobdell has purchased the interest of his partner, Walter Francois, in the Lobdell & Francois Garage, Redwood Falls, Minn. He will continue the business alone, under his own name.

Under the style Peck, Haynes & Co., a new company has "opened up" in Grand

Rapids, Mich. William A. Peck is the president and chief stockholder of the concern, which will handle Packard cars.

In order to accommodate its growing business the Ebann & Beringer Auto Co., of Utica, N. Y., has purchased the entire building at 12-14 Burnet street. The company handles Marion and Oldsmobile cars.

The Pierce-Arrow Auto Co., of St. Paul, Minn., is erecting a one-story building at Fifth and Seventh streets, to be used as salesroom and repair shop. The structure is 85 x 40 feet and will cost when complete \$15,000.

George M. Saul, John Meissner and Henry Stange have purchased the old Buchanan livery stables, Reinbeck, Ia., and will construct a garage on the property. A brick building, 100 x 44 feet, is in course of erection.

Cory & Copher is the style of a new firm which has opened salesrooms and a garage on College avenue, near Sixteenth street, Indianapolis, Ind. Besides storing cars the company will make a specialty of dealing in accessories.

Owing to the confusion in names, caused by the existence of two automobile companies in New York State styled La France Motor Car Co., the Elmira garage concern of that name has changed its title to La France Garage Co.

The Roberts-Toledo Auto Co., in the Ohio city of that name, has found its old quarters too small, and moved into its new building at the corner of Eleventh and Madison streets. Ford cars form the chief stock in trade of the concern.

The Western Motor Car Co., of San Francisco, Cal., has filed a voluntary petition in bankruptcy, giving its liabilities as \$1,447.59 and assets as \$763.10. The company was a co-partnership composed of James E. Nicholson and H. C. Hoffman.

The Moran Auto Sales Co., of Grand Rapids, Mich., has found its old quarters at 45 Kent street too small for its needs and has moved to 91-99 Jefferson avenue, formerly used as a salesroom by the Riley Auto Co. Maxwell cars will form the chief stock in trade.

The Highland Garage, at Five Points, Ala., formerly owned by Hooper & Sharpe, has been purchased by F. E. and L. E. Whitehead, who will continue the business under the old style. Simultaneously the capital stock of the company has been increased from \$5,000 to \$25,000.

The L. A. Mitchell Motor Co. has opened sumptuous salesrooms in the Engle building, Jacksonville, Fla., where Stoddard-Dayton, Courier and Brush cars will be

shown. L. A. Mitchell, president of the new company, has been manager of the Postal Telegraph Co.'s Jacksonville branch for seven years.

Philip and Walter Ruhlman, doing business as the Ruhlman Garage, Cincinnati, Ohio, have filed a statement giving a list of their creditors and claiming solvency. Bankruptcy proceedings had been started by creditors against the company, and that these proceedings be dismissed is the request of the petitioners.

The Cutting Motor Co., which conducted a garage at Le Mars, Ia., has moved to Sioux City, where a much larger garage will be operated. The Le Mars garage was at once taken over by Hauck & Grau, who will continue the business under their own name. Cutting cars are handled by both concerns.

As a result of the visit of C. F. Pratt, president and general manager of the Ohio Motor Car Co., to Toronto, the American Motor Sales Co., of that city, will hereafter handle the Ohio car in the Dominion. It has broken ground for a new building, part of which will be occupied as a factory service station of the Ohio company itself.

The Dayton and Troy Automobile Co., of Dayton, Ohio, has been incorporated for the purpose of taking over the business at present conducted by C. E. Emerich, S. S. Faulkner and W. J. Sherer on Fourth street. These three men, with their wives, will form the board of directors of the company, which will deal in automobile accessories and sporting goods.

A petition in involuntary bankruptcy has been filed against the Carter Garage Co., 2148 Broadway, New York City, by several of its creditors, whose aggregate claims amount to \$1,008. It is alleged in the petition that the company is insolvent and that on July 5th it assigned \$3,000 of accounts to the Alicia Realty Co., of New York City, to pay a debt. The assets are estimated at \$2,500. The company was incorporated several years ago with \$30,000 capital.

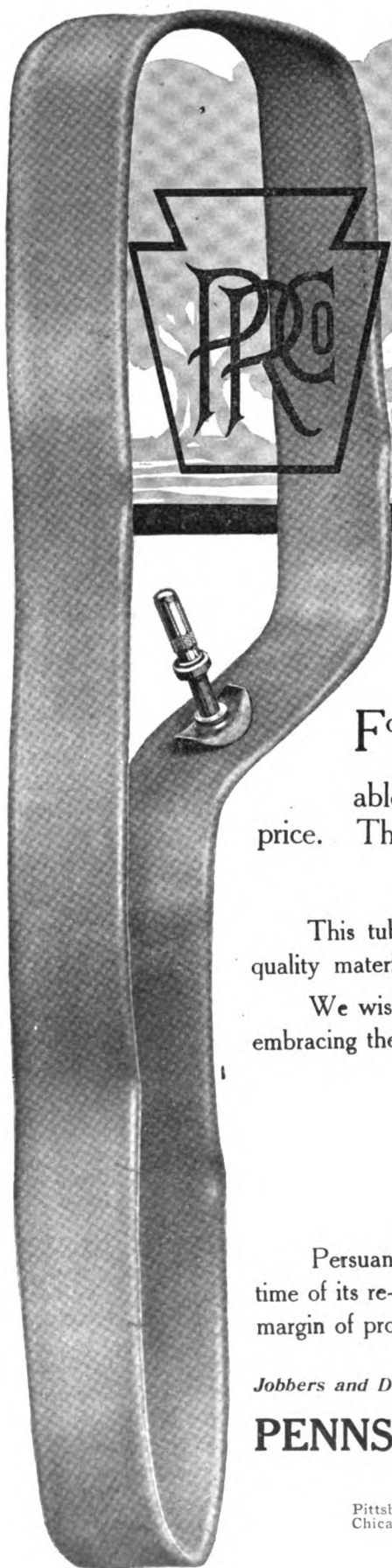
Recent Losses by Fire.

St. Louis, Mo.—Haywood Garage, 4225 Olive street, destroyed. Loss, about \$6,000.

Buffalo, N. Y.—United States Wood Working Co.'s plant damaged. Loss, \$5,000.

Grand Rapids, Mich.—Joseph H. Brewer's garage, 31 Gay street, and three bars burned. Loss, \$12,000.

New York City, N. Y.—United Motor New York Co.'s garage, 543 West Fifty-second street, and 30 cars wrecked. Loss, \$50,000.



PENNSYLVANIA

"Guaranteed"

INNER TUBES

"No. 503"

A high grade tube sell- ing at a moderate price

For months the Pennsylvania Rubber Company has been experimenting on the development of a genuinely serviceable automobile tube which could be sold at a reasonable price. The Pennsylvania "No. 503" is the result.

Each Tube is Guaranteed

This tube has been so thoroughly tested, is so well made and of such high quality material that it carries an unqualified season's guarantee.

We wish to announce that our line of No. 503 Inner Tubes is now complete, embracing the following sizes:

28 x 3	34 x 3½	34 x 4	36 x 4½
30 x 3	30 x 4	35 x 4	37 x 4½
30 x 3½	31 x 4	36 x 4	36 x 5
31 x 3½	32 x 4	34 x 4½	37 x 5
32 x 3½	33 x 4	35 x 4½	37 x 5½

Persuant to the policy adopted by the Pennsylvania Rubber Company at the time of its re-organization, February 1st, 1910, we have contemplated an attractive margin of profit for the trade, in placing this tube on the market.

Jobbers and Dealers Desiring to Sell Automobile Inner Tubes for Profit Should Write Us.

PENNSYLVANIA RUBBER CO., Jeannette, Pa.

(Re-organized Feb. 1st, 1910)

BRANCHES

Pittsburgh, 505 Liberty Avenue
Chicago, 1004 Michigan Avenue

Detroit, 247 Jefferson Avenue
Minneapolis, 917 First Avenue, S.

Pennsylvania Rubber Co., of New York
New York City, 1700 Broadway

Pennsylvania Rubber Co., of California
San Francisco, 512-14 Mission Street
Los Angeles, 930 So. Main Street



PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

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 F. V. CLARK.....Secretary-Treasurer
 R. G. BETTS.....Managing Editor
 154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
 Single Copies (Postage Paid) 10 Cents
 Foreign and Canadian Subscriptions \$3.00
 Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; if unavailing, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
 Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, NOVEMBER 2, 1911.

Influence of the Private Garage.

Motorists long ago came to recognize the garage as one of the big questions of the industry. Impatient at the slow and sometimes almost indistinguishable improvement in general garage conditions, particularly in large cities, some of them long ago gave it up as a bad job and decided to make the best of it. Notwithstanding which exhibition of despair, the average modern garage is far superior to its predecessor of but a few years ago, albeit no less avaricious in its treatment of the transient patron. But whatever may be said, favorable or otherwise, of the public garage, the garage problem, as such, has not been properly defined until mention has been made of the private establishment in which the owner houses his one, and occasionally his two or three, cars.

Be it barn, woodshed or concrete pavilion on the lawn, the private garage is a factor to be reckoned with, both in its effect on

the business of the public garage man and its influence on the trade. And it is a factor which rapidly is assuming more important proportions. To the automobile has been given credit for considerable assistance in suburban real estate development. Not infrequently an essential of such assistance is the private garage. To the automobile has been given the credit for the emancipation of the modern farmer from the thralldom of his old-time isolation. Invariably his release from bondage results from his ability to care for his own machine quite as much as from its mere possession; it is possible only where the public garage can be almost entirely eliminated from consideration. Thus the latter institution is coming to play much the same part in the realm of the automobile that the hotel does in human life; it is a resting place for transients and a home only in instances where inability or disinclination prevents the maintenance of a private establishment.

The changing status of the public garage should be fixed in mind for several reasons—principally because it involves an alteration in the very nature of the business. The public garage in the future, and particularly in the smaller towns and villages, is destined to become more and more dependent on the sales of supplies and spare parts, and to some degree on repair work, than it is on the apparent staples of storage and routine maintenance.

Little Things Coming to the Top.

If it is the little things that count—and there is small doubt about it—good as they are, motor cars cannot fail to become a great deal better, and due solely to the "little things" that now are occupying so much of the manufacturer's attention.

While none will dare venture to say that finality of design has been reached or even approached, it is apparent that the foundation of the modern car has been so well laid that in the light of to-day there is room for little more than refinement of details. It is not so much the prosecution of this refinement that holds promise of better cars as it is the exploitation of the refinements themselves.

Heretofore price or reputation or a few mechanical "high spots" have constituted the arguments on which the average salesman relied to effect sales. Generally speaking, if he knew anything of his car's "fine points"—and often he knew nothing—he

did not deign to mention them; they were trifles unworthy of notice, and as not even the manufacturer's catalogs referred to them perhaps the salesman was not wholly in fault. But as the "high spots" of most cars have been brought to such a state of perfection that in their respective classes they now are on a parity, the salesman who is not a mere order-taker, and, indeed, the car manufacturer, needs must find reasons to advance why his particular car is to be preferred over rival cars. Exploitation of details hitherto unknown, unsung or undeveloped affords the readiest and the most satisfying answer. Apparently there are those who have begun to realize the fact.

Thus, one manufacturer of a car of no mean repute has found even the size of the spokes of his wheels to be a detail worth advertising and exploiting. Nothing well could appear more insignificant or uninteresting, and yet the case of the wheel-spoke and the factor of strength which it adds is presented in a manner that commands instant attention and cannot well fail to induce thought. Until it was exploited probably not one person in a hundred was aware that this particular spoke was slightly stouter and heavier than other spokes in use. Another car manufacturer has discovered that it is worth emphasizing that his leather work is genuine leather. Another has learned that the depth of his upholstery is a feature not wholly to be overlooked; in fact, he advertised it conspicuously, and it is not to be denied that the picture of added comfort leaves an impression.

These are little things—trifles, if you please—but they are the sort of little things that are beginning to count; that are causing prospective purchasers to stop and reflect and inquire. They will count even more heavily as the years wear on and as competition becomes keener; their exploitation will force other manufacturers to devote more attention to other such little things, and thus will the "breed" of motor cars continue to be improved. There are many cars to-day which possess such "trifles" that can be made of potent value in influencing sales, but of which are turned to no advantage largely because they are permitted to remain unsung, if not unknown. But the automobile salesmen of the future will know more than the "high spots" of his car; he will know it inside and out, or he will not long remain a salesman.



New Orleans, La.—Hercules Tire Co., under Louisiana laws, with \$50,000 capital; to deal in automobile tires. Corporators—Dr. J. M. Underwood and others.

Indianapolis, Ind.—Auto and Mercantile Co., under Indiana laws, with \$3,000 capital; to deal in automobiles and accessories. Corporators—W. H., F. R. and E. F. Brown.

Newark, N. J.—Seventh Avenue Garage Co., under New Jersey laws, with \$25,000 capital; to operate automobile garages. Corporators—C. H. Weller, H. B. Hall, L. J. Cain.

Oskaloosa, Iowa — Oskaloosa Garage Co., under Iowa laws, with \$10,000 capital; to operate a garage and deal in automobiles. Corporators—E. L. Anderson, Howard Taylor.

Indiana Harbor, Ind.—The Northwestern Automobile Club, under Indiana laws, with \$1,500 capital; to deal in automobiles. Corporators—C. C. Robinson, B. S. Gardner, P. E. Stephens.

Dallas, Texas.—Michelin Tire Co. of Texas, under Texas laws, with \$20,000 capital; to deal in automobile tires. Corporators—Stephen Bridier, L. E. Burgess, J. L. Burgess and others.

Dayton, Ohio—Ohio Mercer Sales Co., under Ohio laws, with \$20,000 capital; to deal in automobiles. Corporators—George A. Ware, M. E. State, E. P. Chamberlain, B. L. Hull, J. I. Raberen.

Toledo, Ohio—Ford Bros. Auto Sales Co., under Ohio laws, with \$10,000 capital; to deal in automobiles. Corporators—Guy R. Ford, J. R. Ford, Margaret A. Ford, Blanche A. Ford, C. M. Kelly.

Schenectady, N. Y.—H. O. Craven Mfg. Co., under New York laws, with \$50,000 capital; to manufacture carburetors for gasoline engines. Corporators—H. D. Craven, J. A. Field, G. W. Donnan.

Salt Lake City, Utah—Merchants Package Delivery Co., under Utah laws, with \$25,000 capital; to operate automobiles and motor trucks. Corporators—Sol G. Kahn, Milton E. Lippman, Edwin C. Kahn.

Chicago, Ill.—Washington Park Garage Co., under Illinois laws, with \$1,200 capital; to maintain a garage and deal in automobiles. Corporators—Robert L. Dean, Julius Eisenberg, Harry C. Livinson.

Oklahoma City, Okla.—Cadillac Co. of Oklahoma, under Oklahoma laws, with \$25,000 capital; to deal in automobiles. Corporators—Charles Barbour, F. A. Billings, W. Mackintosh, Ross N. Lillard.

Greensboro, N. C.—Greensboro-Chal-

mers Co., under North Carolina laws, with \$25,000 capital; to deal in automobiles. Corporators—Garland Daniels, D. R. Hufines, Walter L. Griffith, Cooper A. Hall.

Memphis, Tenn.—Chalmers-Memphis Co., under Tennessee laws, with \$5,000 capital; to deal in automobiles. Corporators—H. C. Lockett, J. M. Stockle, P. W. Lytle, F. J. Ramier, W. P. Biggs.

Missoula, Mont.—Montana-Overland Co., under Montana laws, with \$5,000 capital; to deal in automobiles, motor vehicles and accessories. Corporators—George L., M., and William Steinbrenner, all of Missoula.

Grand Rapids, Mich.—Form Specialty Co., under Michigan laws, with \$3,000 capital; to deal in automobiles, motor vehicles and automobile supplies. Corporators—James M. Haynes, Richard Shoemaker, R. H. Shoemaker, C. E. Lewis.

New York, City, N. Y.—International Motor Service Association, under New York laws, with \$100,000 capital; to deal in automobiles and motor vehicles. Corporators—W. H. Brearley, W. W. Friend, I. A. Monsees, all of New York City.

Fort Madison, Ia.—Fort Madison Auto and Supply Co., under Iowa laws, with \$30,000 capital; to deal in automobiles and motor accessories. Corporators—Ernest Corsepius, T. P. Hollowell, A. B. Garrott, George B. Stewart, W. A. Scherfe.

Camden, N. J.—International Airless Tire Co., under New Jersey laws, with \$100,000 capital; to manufacture automobile tires. Corporators—J. H. Nixon, I. Zimmercan, both of Philadelphia, Pa.; T. B. Hall, Camden, N. J.

Lewisburg, W. Va.—The Greenbrier Motor Co., under West Virginia laws, with \$10,000 capital; to deal in automobiles. Corporators—Mason Bell, F. H. Campbell, F. M. Arbuckle, K. M. Snyder, all of Lewisburg; W. B. Hines, White Sulphur Springs.

New York City, N. Y.—United Automobile Owners' Protective Association, under New York laws, with \$25,000 capital; to deal in motor supplies, inspect automobiles and conduct a chauffeurs' employment agency. Corporators—A. J. Davenport, Flushing, L. I.; H. E. Troid, H. A. Trebing, both of New York City.

Increases of Capital.

Detroit, Mich.—Taxicab Service Co., from \$30,000 to \$100,000.

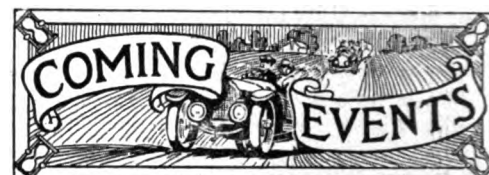
Detroit, Mich.—Edmunds & Jones Mfg. Co., from \$50,000 to \$500,000.

Decatur, Ind.—The Decatur Motorcar Co., from \$200,000 to \$350,000.

Pocatello, Idaho—Pocatello Auto and Garage Co., from \$12,000 to \$25,000.

Change in Corporate Name.

Seattle, Wash.—H. G. Kennedy Motor Truck and Wagon Co., changes name to Kennedy Wagon Co.



November 3-4, Columbia, S. C.—Automobile Club of Columbia's racemeet.

Nov. 3-11, London, England—Society of Motor Manufacturers' and Traders' annual show in Olympia Hall.

November 4-6, Los Angeles, Cal.—The Phoenix road races under auspices Maricopa Automobile Club.

November 9, Phoenix, Ariz.—Track races under auspices Maricopa Automobile Club.

November 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

November 13, Harrisburg, Pa.—Economy tests under auspices Motor Club of Harrisburg.

November 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

November 29, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

November 30, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

January 2-10, New York City, N. Y.—Importers' salon at Hotel Astor.

January 6-13, New York City—Automobile Board of Trade's 12th annual show in Madison Square Garden. Pleasure vehicles only.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual national show in New Grand Central palace. Pleasure and commercial vehicles.

January 15-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden. Commercial vehicles only.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

January 22-27, Providence, R. I.—Rhode Island Licensed Automobile Dealers' Association's show in the State Armory.

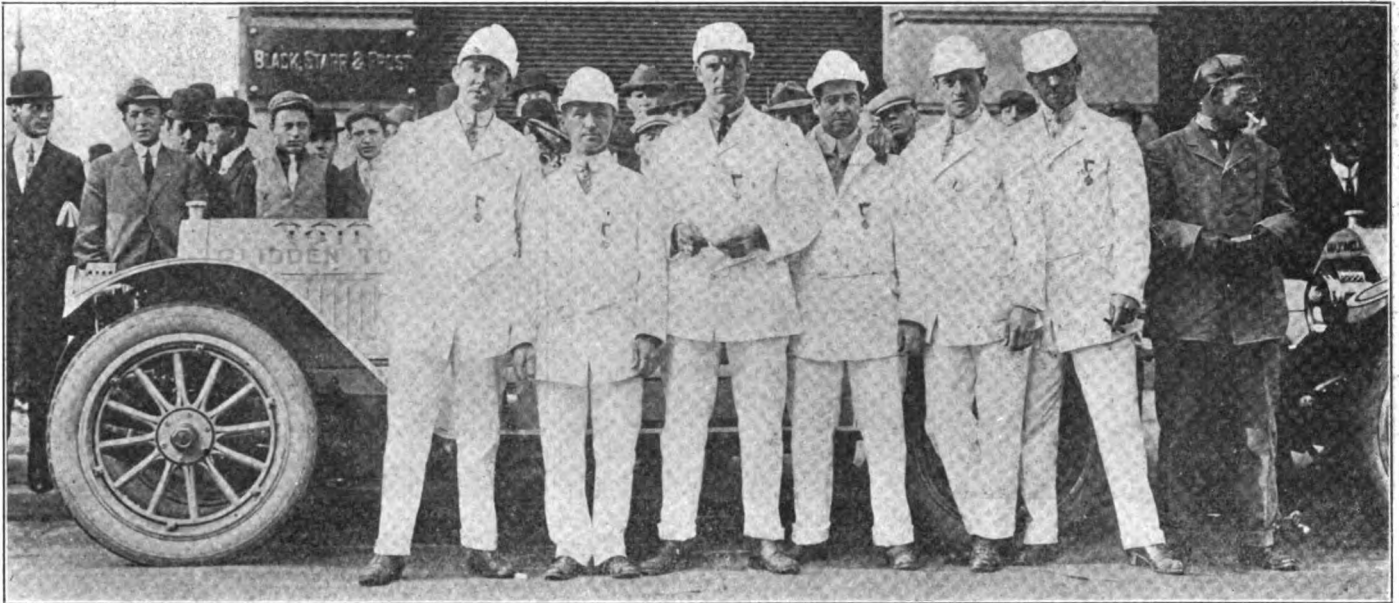
January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association annual show at Wayne Garden.

January 27-February 3, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in the Coliseum and 7th Regiment Armory. Pleasure vehicles only.

February 5-10, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in the Coliseum and 7th Regiment Armory. Commercial vehicles only.

Tarrytown Team Captures the Glidden Trophy

Keeps Up Its Remarkable Work and Retains Clean Score to the End—Governor Smith Gets Anderson Trophy—Hard Going and Rain Mark the Closing Days.



THE MEN WHO WON THE GLIDDEN TROPHY—THE TARRYTOWN-MAXWELL TEAM: (READING FROM LEFT TO RIGHT) H. E. WALLS, O. P. RILEY, B. O. FAIR, W. C. MERNAN, THOS. COSTELLO AND E. G. GAGER

FINAL STANDING FOR THE GLIDDEN TROPHY

Standing	Penalty		
1. Tarrytown Team, United States Motor Co.....	0	4. Atlanta Team No. 3.....	125
2. Atlanta Team No. 2.....	19	5. Live Oak Team.....	279
3. Jacksonville Team	23	6. Nashville Team	508
		7. Detroit Team	1028

THE SEVENTEEN WINNERS OF DIVISIONAL AWARDS

Touring Cars, Division 1A, \$800 and Under			Touring Cars, Division 4A, \$1,601-\$2,000		
No.	Car and Entrant	Penalty	No.	Car and Entrant	Penalty
54.	Flanders, Studebaker Corporation.....	0	40.	Cadillac, H. P. McNeil.....	0
Runabouts, Division 1A, \$800 and Under			48.	Cadillac, R. S. King.....	0
44.	Ford, E. M. Willingham.....	0	Runabouts, Division 4A, \$1,601-\$2,000		
45.	Ford, I. O. Teasley.....	0	32.	Cadillac, Claude Nolan.....	0
Runabouts, Division 2A, \$801-\$1,200			Touring Cars, Division 5A, \$2,001-\$3,000		
26.	Mitchell, Ad. Men's Club and Chamber of Commerce, Anderson	88	19.	Mitchell, L. C. Brown.....	0
Touring Cars, Division 3A, \$1,201-\$1,600			Touring Cars, Division 6A, \$3,001-\$4,000		
1.	Maxwell, United States Motor Co.....	0	11.	Stevens-Duryea, C. H. Johnson.....	0
2.	Maxwell, United States Motor Co.....	0	Runabouts, Division 6A, \$3,000-\$4,000		
3.	Maxwell, United States Motor Co.....	0	39.	Stevens-Duryea, Crawford Wheatley.....	0
4.	*Maxwell, Governor Hoke Smith	0	Touring Cars, Division 7A, \$4,001 and Over		
Runabouts, Division 3A, \$1,201-\$1,600			52.	Packard, James H. Brennan.....	14
27.	Chalmers, J. H. Marsteller.....	13	Runabouts, Division 7A, \$4,001 and Over		
* Winner Anderson trophy.			5.	American, Inman Gray.....	0

No squabble can mark the award of the Glidden trophy this year, such as marred last season's contest. The Tarrytown team, composed of three Maxwell Special touring cars, won it unequivocally, absolutely. It was the only one of the 18 teams that left New York City on the 10th inst. that rolled into Jacksonville, Fla., 16 days later with

a perfect score. Of course these three cars won in their class, too, and to make the landslide even more complete Governor Hoke Smith's Maxwell also finished the 1,460 miles journey to Southern climes with a slate cleaner than ever was a schoolboy's. Naturally the Glidden trophy was the principal bone of contention. But the An-

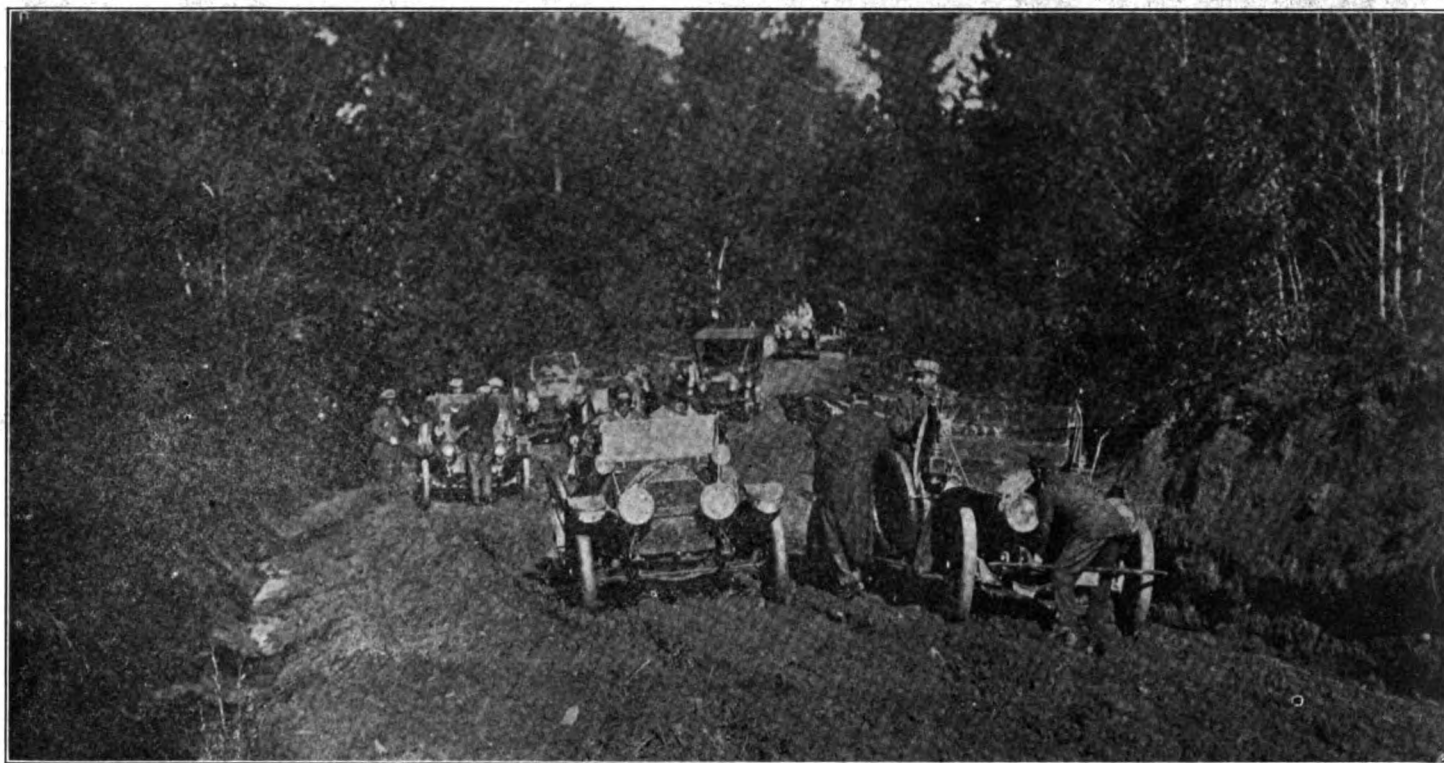
derson (S. C.) trophy also loomed large on the horizon, and when it came time to hand it out there were no less than 15 contenders with perfect scores to claim it. The forethought of the donors had provided for just such a contingency, however, and it was drawn for. The drawing was a sort of double-barreled affair; the claim-



CHALMERS PRESS CREW PLOUGHING THROUGH A PICTURESQUE FLORIDA WILDERNESS

Detailed Scores of the Team Contestants for the Glidden Trophy

Tarrytown, N. Y.		October														Totals	
No.	Car and Driver.	14	15	16	17	18	19	20	21	22	23	24	25	26	Car	Team	
1—	Maxwell, Harry, Walls	....	....	....	....	....	....	....	....	....	Rest	Rest	....	....	....
2—	Maxwell, E. G. Gager	....	....	....	....	....	....	....	....	....			....	....	....
3—	Maxwell, Thos. Costello	....	....	....	....	....	....	....	....	....			....	....	....	....
Atlanta No. 2.																	
11—	Stevens-Duryea, C. H. Johnson	....	....	....	....	....	....	....	....	....			....	....	....
39—	Stevens-Duryea, W. K. Brinson	....	....	....	....	....	....	....	....	....			....	....	....
66—	Stevens-Duryea, E. S. Murphy	....	....	....	10	9	....	....	....	....			....	....	19	19
Jacksonville.																	
32—	Cadillac, A. G. Miloch	....	....	....	....	....	....	....	....	....			....	....	....
40—	Cadillac, A. W. Walker	....	....	....	....	....	....	....	....	....			....	....	....
47—	Cadillac, Edgar L. Kellogg	....	....	....	23	....	....	....	....	....			....	....	23	23
Atlanta No. 3.																	
43—	Ford, M. W. Venable	....	....	....	....	....	....	....	....	....			....	....	....
44—	Ford, John Orr	....	....	....	125	....	....	....	....	....			....	....	125	
45—	Ford, T. M. Haywood	....	....	....	....	....	....	....	....	....			....	....	....	125
Live Oak.																	
31—	Cadillac, W. H. Lyle	....	....	....	....	189	....	....	....	....			....	....	189	
51—	Cadillac, Glenn Newsom	....	....	....	13	....	....	....	....	....			....	74	87	
74—	Cadillac, Dr. W. M. Stinson	....	....	3	....	....	....	....	....	....			....	....	3	279
Nashville.																	
56—	Marathon, P. A. Shelton	....	....	....	72	153	....	....	....	....			....	....	225	
57—	Marathon, J. E. Dent	....	....	....	210	....	....	....	....	....			....	31	241	
58—	Marathon, W. F. Anderson	....	....	....	9	34	....	....	....	....			....	....	43	509
Detroit.																	
53—	Flanders, Peter Kuntz	....	....	591	....	....	21	....	....	....			....	....	612	
54—	Flanders, W. H. Soules	....	....	....	....	....	....	....	....	....			....	....	....
55—	Flanders, T. R. Bell	....	....	....	416	....	....	....	....	....			....	....	416	1028
Atlanta No. 5.																	
4—	Maxwell, Arthur See	....	....	....	....	....	....	....	....	....			....	....	....
49—	Columbia, Paul Kellar	....	....	....	....	....	....	....	....	....			....	....	....
50—	Maxwell, W. F. Cook	....	....	....	....	1000	....	....	....	....			....	....	1000	1000
Atlanta Journal.																	
5—	American, Inman Gray	....	....	....	....	....	....	....	....	....			....	....	....
6—	Thomas, W. B. Odell	....	....	....	....	1000	....	....	....	....			....	....	1000	
7—	White, Wm. Schneider	....	....	....	....	....	18	....	9	....			....	....	27	1027
Cordele.																	
60—	Oldsmobile, N. G. Lotridge	....	....	....	4	81	26	39	1000	....			....	....	1150	
65—	Oldsmobile, I. M. Powell	....	....	....	....	....	....	....	17	....			....	....	17	
69—	Oldsmobile, J. B. Gordon	....	....	....	1	....	....	....	....	....			7	....	8	1175



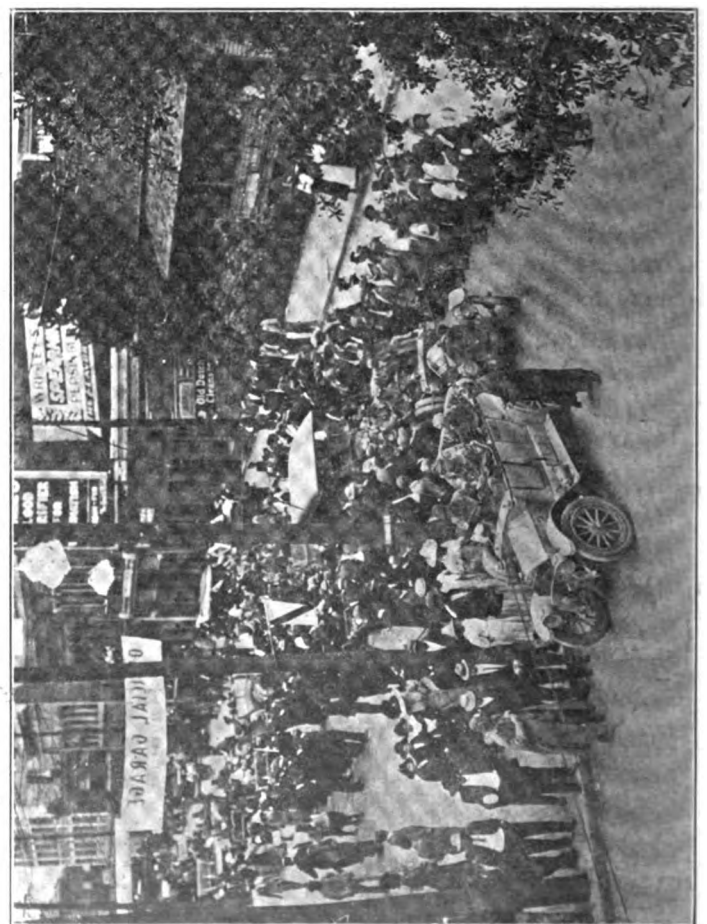
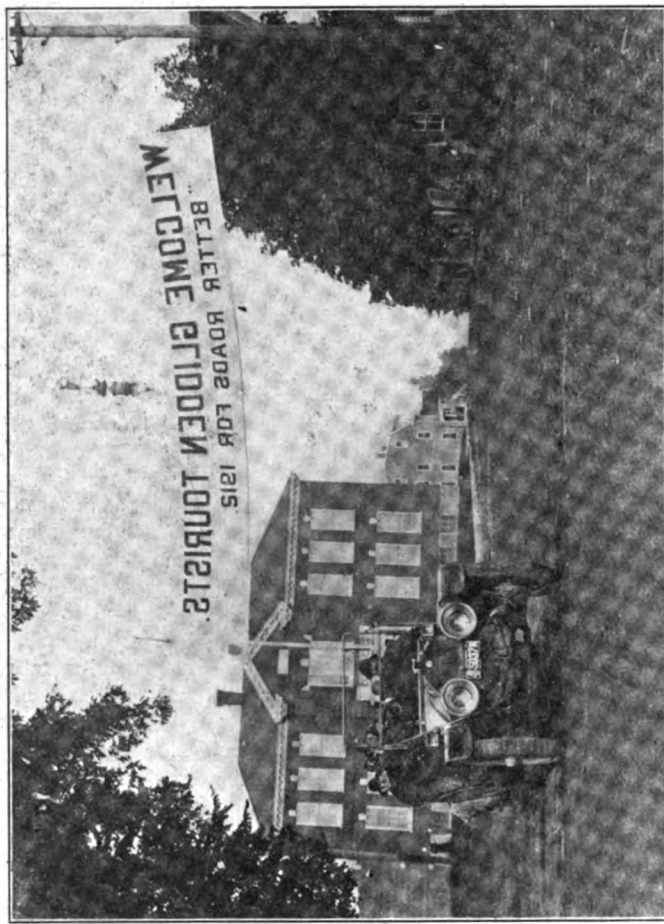
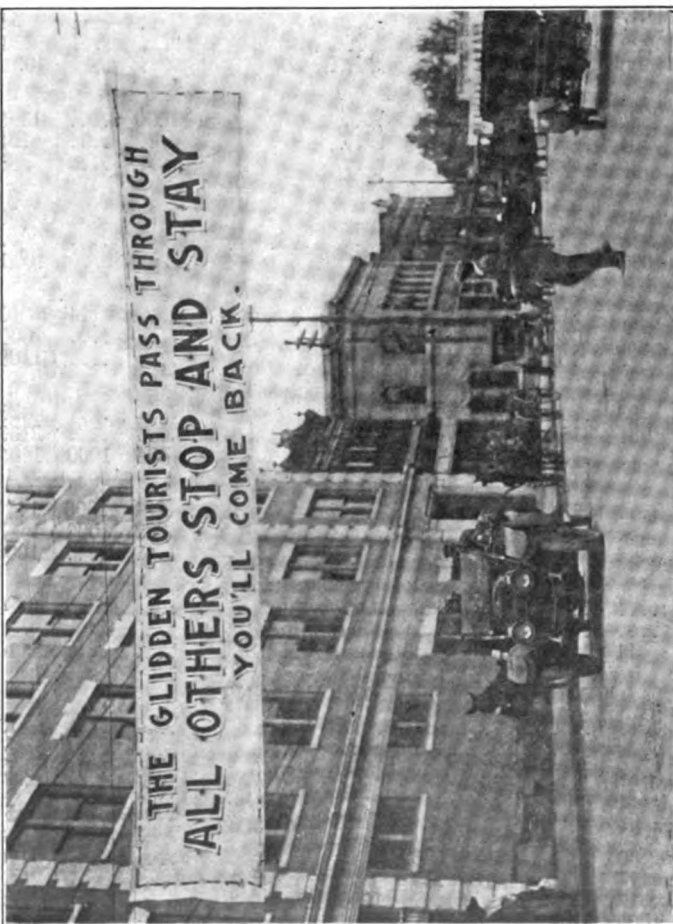
ONE OF THE SOUTHERN ROADS THAT TRIED MEN'S SOULS—AND SKILL

No.	Car and Driver	14	15	16	October	17	18	19	20	21	22	23	24	25	26	(Totals)
																Car Team
Everglades.																
33—	Cole, S. M. Hawkins.....	....	....	....	....	....	87	13	62	....	19	....	....	....	....	181
46—	White, J. Howard.....	....	....	....	....	....	4	42	....	4	1000	....	....	....	....	1050
48—	Cadillac, R. S. King.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1231
Albany, Ga.																
34—	Halladay, C. F. Owens.....	....	....	63	....	....	....	....	....	....	....	....	....	....	....	63
35—	Halladay, E. B. Lee.....	....	....	....	....	228	....	....	....	....	....	....	....	....	....	228
36—	Halladay, F. Bradshaw.....	....	31	....	....	1000	....	....	....	....	....	....	....	....	....	1031
Atlanta No. 1.																
8—	Flanders, H. Cohen.....	....	....	....	296	....	....	....	....	....	....	....	1000	....	....	1296
63—	Flanders, Gus J. Adams.....	....	....	....	....	104	....	....	....	....	....	....	....	....	....	104
61—	Flanders, J. Menzinger.....	....	....	....	5	....	....	....	....	....	....	....	....	....	....	5
Atlanta No. 6.																
18—	Garford, W. H. Williams.....	....	....	....	960	10	....	....	....	....	....	....	....	....	....	970
19—	Mitchell, L. C. Brown.....	....	....	....	....	1000	....	....	....	....	....	....	....	....	....	1000
20—	Schacht, E. F. Crawley.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1970
Atlanta No. 4.																
10—	Pierce-Arrow, Geo. Domeck.....	....	....	....	....	....	12	14	....	....	....	....	....	....	14	40
12—	Marmon, B. M. Grant.....	....	....	....	....	....	1000	....	....	....	....	....	....	....	....	1000
64—	Pierce-Arrow, C. F. Wolfe.....	....	....	....	....	3	105	....	....	....	1000	....	....	....	....	1108
Atlanta No. 7																
21—	Corbin, A. T. Bailey.....	....	....	....	....	23	....	....	....	....	....	....	....	....	....	23
14—	White, W. D. Alexander.....	....	....	....	....	981	152	1000	....	....	....	....	....	....	....	2133
22—	Thomas, J. Biscayard.....	....	....	....	....	....	....	....	....	....	....	406	1000	....	....	1406
Waltham, Mass.																
15—	Metz, C. H. Metz.....	....	....	....	....	....	130	24	6	....	....	....	281	1000	....	1441
16—	Metz, L. Cathcart.....	....	....	....	....	....	57	....	328	....	....	....	282	1000	....	1667
17—	Metz, J. McGann.....	....	....	....	....	....	1000	....	....	....	....	....	....	....	....	1000
Florida																
28—	Cadillac, D. H. McMillan.....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	4
29—	Cadillac, R. W. Rogers.....	....	15	211	....	....	....	....	....	....	Disqualified	....	....	....	....	....
37—	Cadillac, F. Bradshaw.....	....	....	....	3	11	....	....	....	....	....	....	....	....	....	14

FINAL SCORES OF THE INDIVIDUAL AND UNTEAMED CONTESTANTS

27—	Chalmers, Wm. C. Bringman.....	....	13	....	....	....	....	....	....	....	....	....	....	....	....	13
52—	Packard, H. J. Howland.....	....	....	....	14	....	....	....	....	....	....	....	....	....	....	14
73—	Mitchell, G. G. Miller.....	....	....	....	....	....	....	....	....	....	....	....	....	18	....	18
70—	Krit, I. D. Waterman.....	....	....	....	....	....	45	....	....	....	....	....	....	....	....	45
41—	Winton—A. Hardart.....	....	....	....	21	33	....	....	....	....	....	....	....	....	....	54
26—	Mitchell, A. C. Sullivan.....	....	....	....	....	81	....	....	....	....	....	....	7	....	....	88
59—	Cadillac, A. L. Reese, Jr.....	....	....	....	5	60	58	....	23	....	....	....	....	....	....	146
71—	Case, E. W. Walker.....	....	....	....	295	117	....	8	229	....	9	....	1	3	....	662
72—	Haynes, DeWitt Tilden.....	....	....	....	....	17	711	....	....	....	1000	Out	....	....	....	1728
42—	E-M-F-A. McCordle.....	....	53	125	1164	1000	Out	....	....	....	....	....	....	....	....	2342

HOW SOME OF THE SOUTHERN CITIES FLUNG BANNERS TO THE BREEZE AND OTHERWISE WELCOMED THE GLIDDEN TOURISTS



ants drew numbers that designated the order in which they afterward drew for the prize. That "nothing succeeds like success" was proven again by the result; Governor Smith's driver, Arthur See, picked the lucky number out of the hat and turned the landslide into an avalanche for the house of Maxwell.

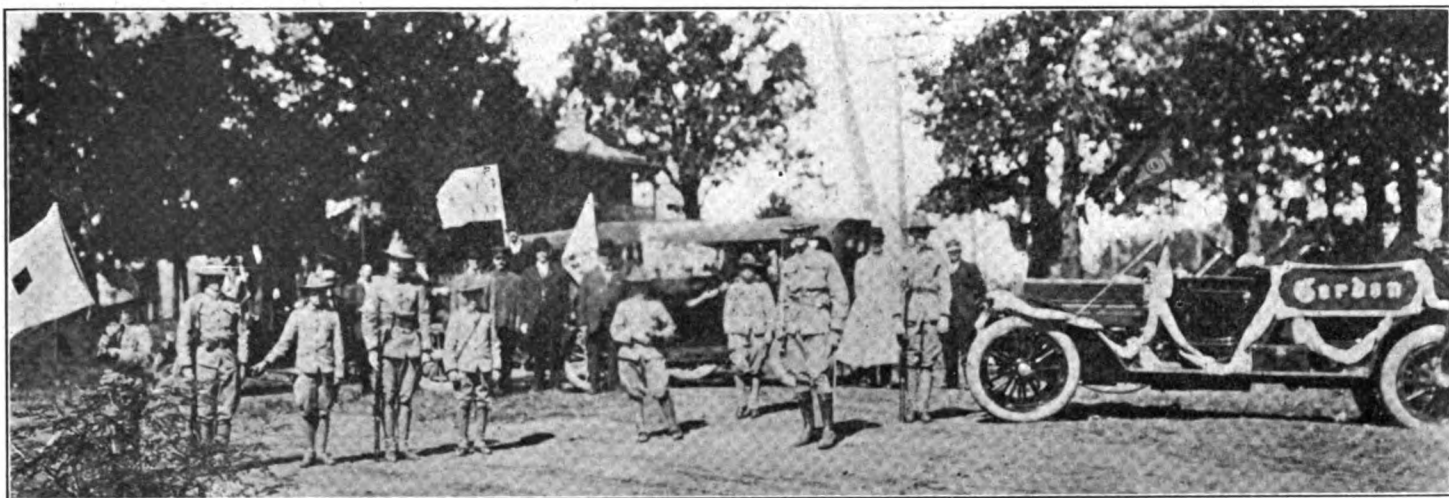
Only seven of the teams reached Jacksonville intact and six of these had amassed penalties ranging from 19 points, which was charged to the Jacksonville team of three Stevens-Duryeas, to 1,028 points, this number standing against the three Flanders cars that composed the Detroit team. As a matter of fact, it was thought right up to the last minute that the Jacksonville team had nearly as good a chance as had

could not run in the tracks made by the other cars and constantly were required to break their own roads. In the deep mud and sand they had a terrible time, for they seldom were on an even keel, and as a result they skidded much more than did the other cars. It was this continual skidding that eventually brought them to grief.

Other than the Glidden and Anderson trophies there were seven prizes of \$200 each divided among the winners of the seven price division classes. In conformity with the rules of the A. A. A., touring cars and runabouts were separated, and half of this amount went to the winner or winners in the touring car division of each class and the other half went to the lucky ones in the runabout divisions.

collision, and though nothing really serious resulted, both required minor repairs and Miller could not make the night control on time and the Mitchell was assessed 18 points. A number of other penalizations also were made, but no other perfect scores suffered.

According to those who crawled into Jacksonville on the evening of the 26th inst. that more cars were not held up on the road was nothing short of marvelous. From Live Oak to the last stop the schedule required a pace of 20 miles an hour with no intermediate stop for lunch. The harrowing tales of the terrible roads to be encountered on the last leg were calculated to set the drivers' teeth on edge, and it is said that among some of them the im-



GORDON, FLA., IS NOT MUCH OF A TOWN BUT ITS WELCOME WAS PICTURESQUE

the winning aggregation. For several days the term had bowled along unpenalized, and if the Stevens drivers did not wish the Maxwell trio trouble, at least they hoped for a continuance of their own good luck.

But it was not always luck that kept the cars on the road and the wheels turning. Cars have been perfected and made staunch till they will stand almost any kind of a racking, but they need a competent and careful guiding hand at the wheel. And this tour again demonstrated that to the driver belongs as much, if not more, of the credit for the performance of his charge as does the car itself. The conditions were of the sort that try men's souls, and their skill and muscle, too.

Ten of the teams were made ineligible by the withdrawal of one car from each, and the Waltham team of three Metz cars was withdrawn entirely, one of the cars being taken out on the fifth day because of a broken wheel and the other two retiring on the last day because of similar troubles. Despite their withdrawal, however, these three little cars really made a good showing in negotiating the distance they did under conditions that tried larger and more expensive cars to the limit. The principal trouble with the Metz cars is said to have been caused by their narrow tread. They

On the last day of the tour, when the 90 miles' run from Live Oak to Jacksonville was made, one more perfect score was spoiled. Inman Gray's American and the Mitchell driven by G. G. Miller for the Winston-Salem Board of Trade were in



GOV. HOKE SMITH—HE WINS, TOO

pression prevailed that the hard schedule had been set for the purpose of eliminating some of the perfect scores. It succeeded in the one instance only.

For miles and miles there was no road at all; it was merely a wearisome trail through seas of sand with nothing to relieve the monotony of the grind but tree stumps and nary a sign of habitations for hours at a time. On other stretches where the route was dignified by the name of road it was merely a wagon trail almost hub deep in sand. Under such conditions it was utterly impossible for the smaller cars—or the large ones either—to maintain the schedule of 20 miles an hour, and the only way they could hope to reach control on time was to travel "wide open" on every cow trail that for a time lost its resemblance to the Sahara desert and presented even an appearance of being a road.

There was not a piece of good road on the whole day's run. Through the deep sand the cars lurched and skidded, later to plunge into mud holes and through small streams. Despite the fact that nearly all the cars were equipped with non-skid tires, tire chains were very much in evidence, and not a few drivers put them on all four wheels the better to negotiate the so-called roads.

Even where the trail led over passable roads where a measure of lost time could be made up, it was so narrow that two cars could not pass, and when the bad spots were reached it often happened that one car, laboring, would hold up the whole procession. Whenever this happened, and it was by no means infrequent, the drivers and passengers of the following cars would turn in and, putting their shoulders to the wheels of the stalled car, help to get it out of difficulties.

Hours before Jacksonville was reached rain set in, and it was no gentle rain, either. Rather it was a cloudburst, and those who came through the fords dry were thoroughly "wetted down" in short order, for very few of the cars carried tops. The three Maxwell cars were among those that were innocent of coverings, and the natty white uniforms in which the team members started from New York soon were reduced to a state where the drivers and their assistants looked more like tramps than respectable citizens of the United States, although as a matter of fact the white had ceased to be white many days before.

With the advent of the rain road conditions rapidly went from bad to worse, and the hardships of the tourists were increased three or even four-fold. Besides, much of the sand had been passed and the run became an old-fashioned mud plug. Slipping and sliding, the cars proceeded at an even slower rate of speed than was necessitated by the sand, and when the mud disappeared for short stretches they were driven the limit. Often caution was thrown to the winds in the endeavors of the drivers to make up some of the time that was lost, and the real wonder is that serious accidents were avoided.

Despite the grueling conditions, however, the tour was not all hardship, and in practically every town that was entered an enthusiastic delegation met the Gliddenites and offered hospitality. Thus in Gordon



IN THE FLORIDA SAND, WHERE TRACTION WAS DIFFICULT

an immense arch, supposedly symbolic of the A. A. A. emblem and topped with three old carriage wheels, had been erected, and through it the procession passed in state while schoolboy cadets lined up and presenting arms. Many of the tourists were from the South, be it remembered—a matter of about 80 per cent. of them, in truth—and such demonstrations were as much a

home-coming welcome as anything else. Several of the cities and towns displayed bunting and flags, and in all of them the populations turned out en masse.

One of the notable incidents of the tour was the performance of the two baggage trucks. Both of them, one a Reo and the other a Federal, reached all the controls on time. They were passed repeatedly on the road, and just as repeatedly they passed the stalled touring cars and runabouts, but always they were on hand at the finish of the days' runs. They were in the tour to carry baggage, and they did it consistently, surely, and be it said to their credit that they made their schedule better than did many of the contesting cars.

Plugging along with the rest of the bunch, the solitary woman driver, Miss Birdie Marks, of Atlanta, handled her Columbia like a veteran and to such good purpose that she reached Jacksonville with a clean slate. Paul Kellar is generally credited with being the driver of the car, but Miss Marks did most of the driving herself and even disdained the help of mere man when "perfectly horrid" punctures had to be fixed.

The weariness shown by the tourists when they eventually pulled into Jacksonville was perfectly legitimate, for the tour undoubtedly was a terrible grind. Not



ATLANTA'S STEVENS-DURYEA TEAM MEETS PLEASANT ACQUAINTANCES



HUB-DEEP RUTS WERE REALITIES IN FLORIDA

many of them are sorry that it is over at last. During the last couple of days the grind was harder than ever, for much of the enthusiasm that marked the initial stages was knocked right out of the procession by the accident to the pacemaker's car in which Chairman Butler of the A. A. A. contest board met his death near Tifton, Ga.

In Jacksonville a great celebration had been planned, and though the program was carried out in part and such celebrating as there was spread over three days, the rejoicing which usually marks the termination of a Glidden tour scarcely was noticeable because of the shadow of gloom which resulted from the fatal accident. Referee Walker and Mrs. Walker, who were in the pacemaking car when the accident occurred, were on hand to help welcome the tourists at Jacksonville. Though both of them presented the appearance of being a little the worse for wear, they were smiling and cheerful and wished everyone all kinds of a good time.

The winning team of three Maxwell cars was captained by Mortimer C. Reeves, who kept a watchful eye over things in general and revived the spirits of the three drivers when they showed signs of slumping. The three cars were driven by Harry Wells, E. G. Gager and Thomas Costello, all three

of whom have been more or less prominent in the realm of sport for a number of years past. There is really little secret to the success of the team; it hung together through thick and thin. Speed was reduced when the going was bad, and whenever good roads were encountered or scores were in danger the hands on the three speedometers gradually crept up till they

reached considerably above the 40-mile mark.

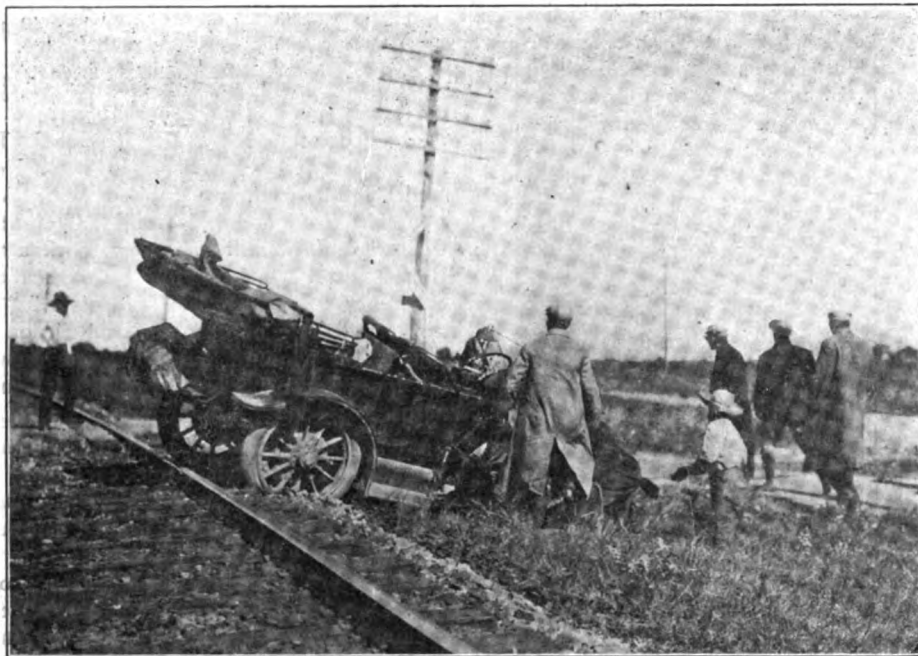
One of the noteworthy features of their performance was that remarkably few stops were necessitated by tire trouble. The three team cars, as well as Governor Hoke Smith's Maxwell, were shod with Ajax non-skid tires, and it is said that eight of the original 16 still had New York air in them when Jacksonville was reached. Stromberg carburettors furnished the proper mixture of gasoline and air on all four of the winning Maxwells, and likewise all four were sparked by Splitdorf magnetos.

Arrived in New York after their arduous journey, the three victorious cars were unloaded from the steamer and in the hands of their respective drivers headed a procession of Maxwell owners that led to the headquarters of the United States Motor Co., where, after a dinner and much speech-making, each of the drivers was presented with a gold watch.

The 1911 Glidden tour was the eighth annual national reliability contest to be promoted by the American Automobile Association and covered approximately half the distance of last year's affair. In 1904 the first national reliability run was held and covered a distance of 1,318 miles from New York to St. Louis. It was not until the following year, however, that the tour really became a Glidden tour, for it was then for the first time that Charles J. Glidden put up the present trophy for competition. The 1905 run had its start and finish in New York, the itinerary embracing a roundabout tour of 871 miles through Hartford, Bretton Woods, Concord and New Hampshire. The trophy was awarded to Percy P. Pierce, driving a Pierce car. In 1906 the tourists covered 1,135 miles through eastern and central New York and up into Canada. C. W. Kelsey, driving a Maxwell, received the trophy that year and held it until 1907.



MISS BIRDIE MARKS PROVES HERSELF AN APT WORKWOMAN



WHERE ONE OF THE CARS HAD A NARROW ESCAPE

In 1907 the deed of gift of the trophy was altered so that the award could be made to the team of cars from one club that made the best aggregate score. Fifteen hundred and seven miles was covered in a trip starting at Cleveland and finishing at New York after a roundabout route through a number of the larger Western cities. The trophy was won by the Automobile Club of Buffalo, whose team consisted of two Pierce-Arrows, two Thomases and one Packard. In 1908 the tour was started in Buffalo, and from there the tourists went to Pittsburg, Philadelphia, Albany, Boston and Saratoga, a total distance of 1,670 miles. This was the second time that the Glidden trophy was competed for by teams, a team in this case consisting of

three cars from the same club. Owing to the fact that three teams were tied for the trophy when Saratoga was reached, it was decided to re-start and to cover the original route until all but one team was eliminated. The Buffalo Automobile Club team was the only one to put in an appearance at the time the run-off was scheduled, and as it refused to start alone the trophy was not awarded for that year, but remained with the A. A. A.

In 1909 the trophy was awarded to the driver of a Pierce-Arrow after a 2,637 miles journey from Detroit down into Kansas, and the following year, 1910, the Chalmers Motor Co. received the trophy after considerable litigation with the Premier Motor Mfg. Co. regarding the eligibility of the



SCENE OF THE FATAL ACCIDENT TO CHAIRMAN BUTLER

Premier entry, which at first was awarded the prize. The tour was started in Cincinnati and finished at Chicago after covering a distance of 2,851 miles through Dallas, Texas, Oklahoma and Kansas to Omaha and then by way of Iowa and Illinois to Chicago.

Vogel Guessed Best for Schimpf Trophy.

Members of the Long Island Automobile Club who were loath to enter their cars in a sure enough reliability contest for the Schimpf trophy felt differently when the run was changed into a guessability contest pure and simple and a goodly number of them turned out on Saturday, 28th ult., to try for the prize under the altered conditions. The run really was a guessability contest in more than one sense. No specified route was laid down, the only conditions imposed being that the contestants check at Hempstead, Hicksville, East Norwich and Roslyn, N. Y. They were at liberty to guess the best routes to use to make connection with the checkers at those points. The secret time allowed each contestant was given him in a sealed envelope and he was required to mark his actual time on the outside for comparison. Louis A. Vogel, Jr., guessed nearest to his allotted time—he was just one minute and seven seconds out of the way—and was awarded the trophy. J. K. Fink, who guessed within one minute and 10 seconds of his time, was second, and W. H. Kouwenhoven was third. His error was two minutes and seven seconds.

End of Fairmount Park Road Race.

In all probability the Fairmount Park road race in Philadelphia has seen its end, the park commissioners having served formal notice on the Quaker City Motor Club that the continuance of the famous race is "inadvisable." The notice took the form of this resolution, which was adopted at the last meeting of the commissioners:

"Resolved, That in the opinion of the Fairmount Park commissioners it is inadvisable to continue the automobile races in the park in future years and that to avoid disappointment and misunderstanding this opinion be transmitted to the persons chiefly concerned and to make the same public."

Philadelphia Reliability Run Off.

There will be no reliability contest this fall in Philadelphia, Pa., under the auspices of the Quaker City Motor Club. Sanction had been obtained from the A. A. A. for a contest on November 2, 3 and 4, but lack of entries has caused the plan to be abandoned.

Motorists of Greensboro (Ala.) have formed the Hale County Good Roads Automobile Club, with William E. Yerby as president and Lee M. Oats, secretary. Vice-presidents will be appointed in each section of the county.

CHICAGO'S 1,400 MILES CONTEST

**Seventeen Start and All Still in the Run-
ning—Six Scores Spoiled—Excite-
ment in Kentucky.**

Seventeen motorists in two divisions—one for touring cars and the other for runabouts—started from Chicago on Friday, 27th ult., in one of the most pretentious reliability runs ever promoted by the Chicago Motor Club, which organization is sponsoring the affair. Before the motorists get back to the starting point they will have covered upward of 1,400 miles over a winding trail leading through sections of Illinois, Indiana, Kentucky and Michigan.

The tour, which is designated officially as a Grade 1 reliability contest, originally was scheduled to start some time early in October, but owing to the fact that Chicago's "open house" show week came about that time the new dates, October 27-November 3, were selected. To-morrow (Friday) will see such of the contestants as have been able to survive back in their home city, where the technical examination will be performed.

Of the 17 who started, the following are computing for the Chicago Motor Club's trophy in the touring car division: Neil Vandervoort, Moline; J. Salisbury, Moline; Will Jones, Case; George Daubner, Halladay; A. Davies, Halladay; C. Winter, Oldsmobile; A. M. Robbins, Abbott-Detroit; Gus Monckmeier, Staver-Chicago; Emery Knudson, Staver-Chicago. The competitors for the Van Sicklen cup in the runabout division are: J. A. Wicks, Moline; W. J. Boone, Moline; Howard Bauer, Oakland; J. H. Stickney, Velie; A. Gibbons, Velie; Adolph Monson, Bergdoll; Paul Strauss, National; E. H. Halbert, Grout. Other than these two trophies there is the Chicago Motor Club's team trophy and the Standard Oil fuel economy trophy.

For the first day's run Indianapolis, Ind., was the destination, and as weather conditions were very nearly perfect and roads were better than had been anticipated all of the contestants reached the noon control at Brook without penalization. During the luncheon stop the tourists were entertained at "Hazleton," the home of George Ade, the noted humorist. Humorously he invited the motorists, one and all, to "pick nuts from his willow trees," and before they left presented each with a package of apples "out of his own garden."

In reaching Indianapolis the scheduled length of the run was increased by a little over four miles, bringing the total for the day up to 221 miles. The increased mileage was necessitated by a detour which was decided on because some of the roads were in very bad state due to repairing operations. The change in the route sent the motorists over what is declared to be one

of the muddiest stretches of highway in northern Indiana, the road taking the procession into the Kankakee River swamp lands. Only one got into difficulties, however, and when the night control was reached 16 perfect scores still remained. The lone sufferer was Paul Strauss, whose National exhibited symptoms of carburettor trouble that necessitated a stop for which he was charged three points.

On Saturday, 28th ult., the run of 179 miles to Louisville was made and the motorists remained in the Kentucky town over Sunday. The roads through southern Indiana and northern Kentucky were in excellent shape, and when the cars were checked in 16 of them still retained their perfect scores. A streak of ill-luck pursued Strauss and his National, however, and 27 additional points were charged against him. Spark plug trouble was the cause and two new plugs had to be fitted, for which 14 points was charged, the remaining 13 being for lateness at control.

Confusion in the route at Greenwood, Ind., nearly caused other contestants to lose their cherished perfect scores. As part of the road was piled with broken stone in preparation for repair work, another detour had to be made. Several of the cars came to temporary grief on this bad section of the road, but the officials decided that the fault was not with the cars and scores were not affected.

After a quiet Sunday spent in Louisville, the procession started on Monday morning for Cincinnati by way of Lexington, the noon control. The day's run covered a distance of 200.8 miles and the entire trip was marked by thrills. The first of the thrills was caused by H. E. Halbert's Grout, which very nearly turned over on a bridge just outside of Prestonia, Ky. A burst tire and a broken spring were responsible for the near accident. Shortly afterward W. J. Boone, at the wheel of a Moline, was in collision with a carriage, and F. E. Edwards, the American Automobile Association representative, was trampled on by a horse which was frightened by the Velie car in which he had been riding. Gus Monckmeier in the Staver-Chicago was assessed 18 points because of a broken spring, and Halbert, whose Moline got into a tantrum, received 48 debits for the same reason.

On Tuesday morning, 31st ult., 14 out of the 17 starters checked out of Cincinnati with perfect scores and headed for Columbus, Ohio, a distance of 172 miles. Arrived there only 11 clean scores remained. Those who were penalized were: George Daubner, Halladay, 19 points, three of which were for cleaning the gasoline line and 16 for repairing broken fenders; A. Gibbons, Velie, one point for muffler cut-out trouble; H. E. Halbert, Grout, 344 for replacing broken spring; Charles Winter, Oldsmobile, 455 points for a damaged wheel and gasoline tank sustained when his car collided with a farm wagon.

Wednesday's run was to Detroit, Mich., 190 miles, with the noon control at Toledo, Ohio. Today's journey is between Detroit and Grand Rapids, Mich., 150 miles, the shortest run of the tour. For the last day a run of 218 miles is scheduled from Grand Rapids through Kalamazoo, Mich., and South Bend, Ind., into Chicago.

Taft Sets Date for A. C. A. Banquet.

While the dinners annually given by the Automobile Club of America always have proven events of more than ordinary importance and magnificence, the forthcoming annual banquet of this club promises to be one of the most notable affairs ever held in this country. No less a person than President Taft will be the guest of honor; indeed, it is stated that he himself selected the date, December 20th, when three representatives of the A. C. A. waited upon him and extended the invitation. In addition to the President, all the members of his cabinet and the diplomatic corps have been invited, and it is confidently expected that some of them will be able to be present at the banquet.

Leading statesmen, professional men and captains of industry throughout the country have been asked to participate, while bids to the feast have been sent to the presidents of all the clubs comprising the International Association of Recognized Automobile Clubs. Among the distinguished foreigners who are included in the list are: The Duke of Connaught, of the Royal Automobile Club of Great Britain; Baron De Zuylen de Nevelt, of the Automobile Club of France; Victor, Duke of Ratibor, of the Kaiserlicher Automobil Club of Germany; Baron Frederix, of the Imperial Club of Russia, and thirty others of hardly less international fame.

Schimpf Made A. A. A. Contest Chairman.

Following a conference on Wednesday, 1st inst., between President Robert P. Hooper of the American Automobile Association and Howard E. Coffin of the Manufacturers' Contest Association, William Schimpf was appointed to fill the unexpired portion of the late Samuel M. Butler's term as Chairman of the Contest Board of the A. A. A. Schimpf is president of the Long Island Automobile Club of Brooklyn, N. Y., and already was a member of the Contest Board.

Minneapolis Climb Again Postponed.

There was no hill climb in Minneapolis, Minn., last Thursday, 26th ult. The affair first was announced to occur October 21st, but was postponed until the later date, and meanwhile Dr. C. E. Dutton, local representative of the A. A. A., investigated matters which led him to advise the Minneapolis Motor Club to again postpone it, as the plans were not shaped to assure success. Accordingly announcement has been made that the climb will be held to-day (Thursday) on Columbia Heights hill.

NATIVE SON SHINES AT LOS ANGELES

Unusual Array of Racing Stars Fails to Dazzle Roscoe Anthony—Lee Oldfield Also a Contender.

"Stars" were so numerous and so luminous at the Los Angeles (Cal.) Motordrome October 21st-22d that it was difficult for the lesser lights and unknown to be seen. The racemeet was under the auspices of the Los Angeles Automobile Dealers' Association and rivaled in brilliance the road carnival at Santa Monica the preceding week. All who had participated in that event appeared on the Los Angeles local track, but not even that dazzling array served to prevent Roscoe Anthony, a local man who made his first appearance, from sharing the glory. At the wheel of a Regal he won the race for small cars without difficulty, and in the five-mile handicap with 45 seconds' start was a contender with Bert Dingley (Pope-Hartford), the scratch man, for first place. Dingley, however, won by a small margin.

Lee Oldfield, driving a Fiat, made his first appearance since the Syracuse (N. Y.) accident and succeeded in capturing one of the five-miles free-for-all events, but in a match with Teddy Tetzlaff (Fiat) at two miles in two heats he was not able to defeat the winner of the 1910 Santa Monica. Tetzlaff also won three other five-miles free-for-all races. Harvey Herrick, this year's hero of Santa Monica, was present, but did not compete. He contented himself by driving a two-miles exhibition in 1 minute 29.60 seconds and one mile in 44 $\frac{3}{4}$ seconds, while Louis Disbrow, piloting Bert Dingley's Pope-Hartford, whizzed a mile in 41.91 seconds. Hanshue (Mercer) took one of the 25 mile races for cars of 231-300 inches displacement and a 10-miles race in the same class on the first day. G. Shain (Schacht) captured both the 10-mile and 25-mile in the same class the second day. William Endicott (Inter-State) with 12 seconds, won a five-miles handicap with Bert Dingley (Pope-Hartford) second and William Carlson (Cole) third. The summary:

Saturday, October 21.

Five miles, Class C, 161-230 inches displacement—Won by Roscoe Anthony (Regal); second, Clarence Smith (Maxwell); third, William Endicott (Reo). Time, 4:39.20.

Ten miles, Class C, 231-300 inches displacement—Won by Harris Hanshue (Mercer); second, Rupert Jeffkins (Schacht); third, William Carlson (Cole). Time, 7:45.20.

One mile time trial—Harvey Herrick (National). Time, 0:44.60.

Five miles free-for-all—Won by Teddy Tetzlaff (Fiat); second, Bert Dingley (Pope-

Hartford); third, Dave Lewis (Stutz). Time, 3:29.60.

Twenty-five miles, Class C, 231-300 inches displacement—Won by Harris Hanshue (Mercer); second, William Carlson (Cole); third, Roscoe Anthony (Regal). Time, 20:59.20.

Five miles free-for-all handicap—Won by Bert Dingley (Pope-Hartford), scratch; second, Roscoe Anthony (Regal), 45 seconds; third, William Endicott (Reo), 50 seconds. Time, 3:48.20.

Five miles free-for-all—Won by Teddy Tetzlaff (Fiat); second, Bert Dingley (Pope-Hartford); third, William Endicott (Inter-State). Time, 3:33.20.

Sunday, October 22.

Five miles, Class C, under 500 inches displacement—Won by Bert Dingley (Pope-Hartford); second, William Endicott (Inter-State); third, Dave Lewis (Stutz). Time, 3:40.40.

Ten miles, Class C, 231-300 inches displacement—Won by G. Shain (Schacht); second, William Carlson (Cole); third, Roscoe Anthony (Regal). Time, 7:55.

Ten miles, Class C, 161-230 inches displacement—Won by Clarence Smith (Maxwell); second, Roscoe Anthony (Regal); third, William Endicott (Reo). Time, 8:42.41.

Five miles free-for-all—Won by Teddy Tetzlaff (Fiat); second, Lee Oldfield (Fiat); third, William Endicott (Inter-State). Time, 3:19.35.

Twenty-five miles, 231-300 inches displacement—Won by G. Shain (Schacht); second, William Carlson (Cole); third, Roscoe Anthony (Regal). Time, 19:48.77.

Five miles free-for-all—Won by Lee Oldfield (Fiat); second, Teddy Tetzlaff (Fiat); third, Bert Dingley (Pope-Hartford). Time, 3:20.33.

Five miles free-for-all handicap—Won by William Endicott (Inter-State), 13 seconds; second, Bert Dingley (Pope-Hartford), scratch; third, William Carlson (Cole), 43 seconds. Time, 4:02.98.

One mile time trial—Louis Disbrow (Pope-Hartford). Time, 0:41.91.

Two miles time trial—Harvey Herrick (National). Time, 1:29.60.

Two miles match, in heats—Teddy Tetzlaff (Fiat) vs. Lee Oldfield (Fiat). Both heats won by Tetzlaff. Time—first heat, 1:18.57; second heat, 1:17.90.

Kansas Motorists Must Pass Examination.

The new automobile ordinance passed by the city council of Wichita, Kansas, makes it compulsory on private owners, or heads of families owning motor cars, to take an examination for competency and pay a fee of \$1 for the certificate. Members of the same family, desiring to drive the car, also must submit to an examination and pay a fee of 25 cents. Professional chauffeurs will have to pay \$2 fee for a certificate. The same ordinance makes it compulsory for all cycles to carry lights.

STORY OF THE "STRENUOUS SEVEN"

They Went from San Francisco to Los Angeles and Return—Now Want Good Roads Club Denied Sanctions.

The hurry and bustle incident to the running of the annual Santa Monica road races was considerable. In fact, it almost was sufficient to overshadow every other sporting event that was held in the West at that time; which, perhaps, accounts for the small amount of attention that was attracted by the first reliability contest to be promoted by the Good Roads Club of Northern California, despite the fact that feeling over the decisions ran so high that there was talk of having the club denied future sanctions. It was started in San Francisco on the 11th ult., whence the trail led to Los Angeles and return, a total distance of 950 miles. Seven days were required to make the trip.

Though the affair was small if viewed solely from the point of number of entrants, it more than made up in strenuousity what it lacked in size. But seven cars were driven away from the starting point, and not one of the contestants was able to complete the journey without penalization.

It was in no way a "summer outing," and the pace set, combined with the rules of the A. A. A., which were observed closely, made it a real contest. This caused many who had intended entering in order to witness the Santa Monica races on the 14th to make up another party and go by easy stages to the scene of the races. Contrary to expectations, the roads through the lowlands were in very bad condition, and even before Paso Robles, the night control of the first day, was reached several penalties were imposed. The next day took the motorists over the treacherous San Juan grade and the hub-deep sand caused much delay. When Santa Barbara was reached more perfect scores had been lost. The third-day route into Los Angeles was much better, but not exactly boulevardlike.

Two days were spent in Los Angeles, the return trip being started Monday, 18th inst., with Bakersfield as the night control. The roads were found to be in better condition for the return journey, though they still were bad enough to cause nearly every one of the contestants to accumulate greater penalties. Also all of the cars received such hard knocks on the trip that all suffered on the final technical examination. The final scores were as follows:

Driver and Car	Penalties—		
	Road	Tech.	Total
William Parry, American..	64	23	87
C. Hobson, Warren-Detroit	326	161	487
Stanley Jonas, Flanders...	833	24	857
Stanley Gawne, American..	865	112	977
C. B. Matthews, S. G. V....	1091	104	1195
Ralph Collins, Cartecar....	1688	342	2030
W. Gillett, Flanders.....	1983	65	2048

VELIE TO BE STARTED WITH PURE AIR

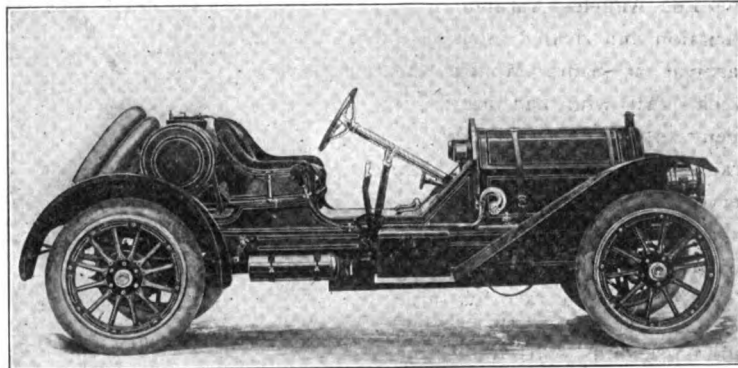
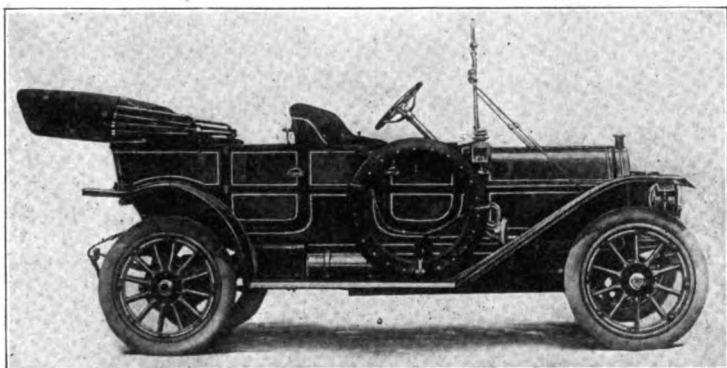
**Its Self-Starter Differs from Other Types,
Employing Original Pump—Other
Features of the New Car.**

In adding the name Velie to the list of new cars equipped with self-starting devices, the Velie Motor Vehicle Co., of Moline, Ill., has not been content to adopt a stereotyped system, without adding to

It consists of a counter-bored body portion, cast with cooling ribs on the outside, inside of which is mounted a two-diameter piston. The lower and large diameter bore is connected directly with the cylinder interior. The upper chamber, which in reality constitutes a separate cylinder, is connected with the atmosphere by means of an automatic poppet inlet valve and with the tank pressure line by means of a ball check valve. The alternate rise and fall of pressure in the cylinder causes the pis-

are now of a single standard size and pattern moreover, which, in addition to doing away with troublesome flanged fittings and gaskets, affords a simple expanding-lock method of installation and adjustment.

Other changes in the construction of the motor include the redesigning of the crank case in such a way that by removing the oil-pan from the bottom it is made possible to remove the pistons and connecting rods without disturbing the cylinders. The oil reservoir is now fitted with an oil gauge,



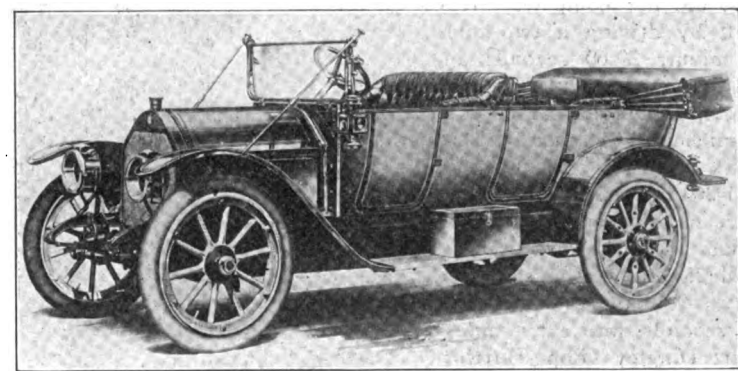
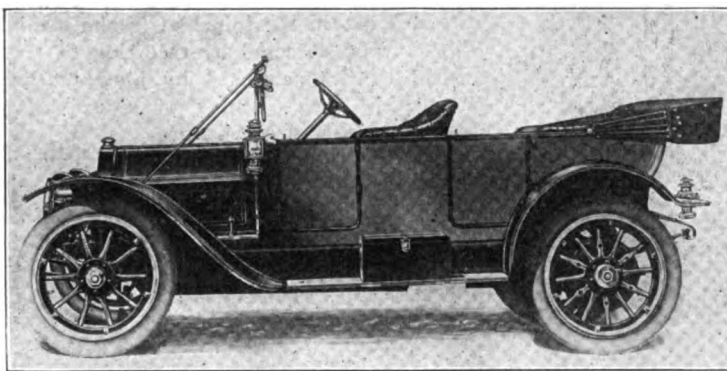
VELIE FIVE-PASSENGER TOURING CAR AT \$2,100 AND THE \$2,000 "RACYTYPE" ROADSTER

its advantages. Hence, although the simple method of introducing pressure into the cylinders through a distributing valve, or "air-timer," is employed, it differs from a number of others of the same general class to the extent that pure air is used and not the waste gases from the engine. In addition to assisting the initial charging of the cylinders with a good working mixture, this is of advantage be-

ton to rise and fall in the cylinder, the lower section serving as a driver for the upper section, which follows the regular two-stroke compressor cycle. Apart from the compressor the system includes a starting valve, the timer, which serves to distribute the air charges to the cylinder in their proper firing order, and leads to the cylinders, properly safeguarded by means of check valves.

the valve stems are bushed in the cylinders and the valve actuating mechanism is now protected by a removable aluminum cover plate.

The three-ring type of plate clutch is retained, but the bearing surface has been increased materially, while by the adoption of a newly designed retaining ring it has been made possible to remove the clutch from the chassis in about one-tenth the



STANDARD FIVE-PASSENGER TOURING CAR AND THE "SPECIAL" MODEL L AT \$2,750

cause it permits the charge in the tank to be used for tire inflation purposes at any time, thus practically eliminating the need of any sort of pump about the engine.

By an ingenious adaptation of the differential piston the pressure variations in one of the cylinders are turned to good account in operating a very small compressor which is entirely automatic in action, and which is capable of raising the receiver pressure to 150 pounds. The device, which is hardly larger than the ordinary check valve such as frequently is used in gasoline pressure-feed systems, occupies the same relative position in the top of one of the cylinders.

In preparing the specifications of the new Velie line considerable pains have been taken to improve the mechanism in essential points without destroying the characteristics which have contributed to its success in the past. Thus the radiator has been increased two inches in height, the water circulating pump mounted on trunnions, making it self-aligning, and the water pipes have been increased to 1 3/8 inches diameter with the idea that the added sectional area will enable the system to act by natural, or thermo-syphon, circulation, in the event of possible failure of the pump. All connections to the motor

time formerly required. The clutch brake has been increased in size and the clutch-operating linkage has been altered in such a way as to increase the leverage, reducing the amount of pressure necessary to release the parts from engagement by fully one-half.

The rear system has been improved by the adoption of a heavy pressed-steel channel section torque arm in place of the tubular member formerly employed, likewise by the enlargement of the driving axles by one-eighth inch on the diameter. The brakes have been increased to 14 inches diameter, while the applying mech-

anism is now arranged inside the frame and operates through "eveners."

Further modifications in the chassis have resulted in an increase in wheel base from 115 to 118 inches on the four- and five-passenger bodies and to 121 inches on the six-passenger special. The race-type roadster and "doctor's special" torpedo roadster remain at 115-inch base, however. The frame now has a double drop, permitting the bodies to be designed with deep, straight lines through the entire effective length. The new bodies are formed of aluminum instead of wood and sheet metal. Tire sizes have been increased from 34x4 to 36x4 inches on the five-passenger cars and to 36x4½ inches on the six-passenger special. The wheel construction has been improved by the adoption of heavy brake drums bolted to the spokes, instead of the old-style drums, which were fitted to the hubs.

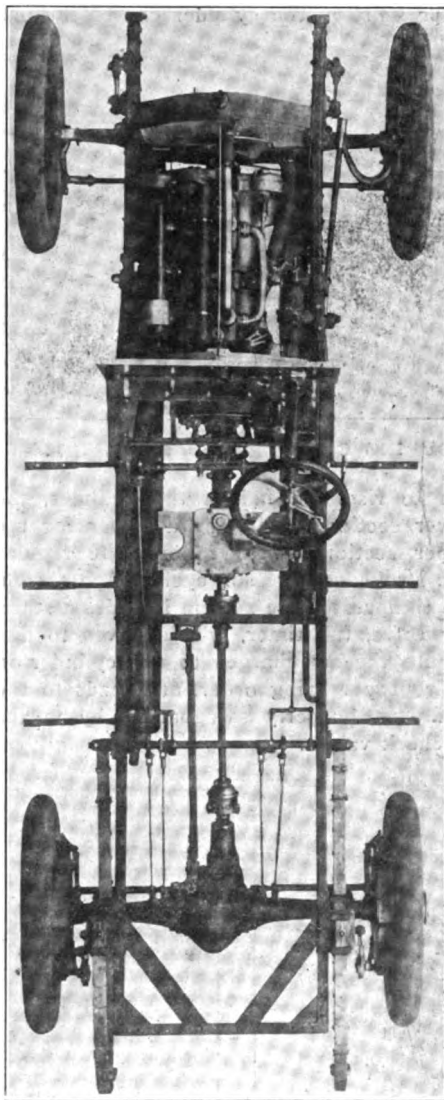
The new bodies, as a result of the amplification rendered possible by the enlarged wheel base, are properly commodious and have three inches more leg room than did the former types of corresponding purpose and capacity. The upholstery is of hand-buffed leather, instead of machine-buffed material, as formerly, and is stretched over 8½-inch tilted cushions. To add finish to the body the filled strip between the running board and frame is brought up flush with the frame and entirely conceals all irons. All door handles, hinges and top irons likewise are concealed, thus leaving the exterior free from unsightly and dust-catching protuberances. As a measure of precaution against distortion, the body and door sills are strongly reinforced with steel angles.

The engine dimensions remain the same as before, which is to say, 4½ x 5¼ inches bore and stroke, the horsepower thus being 32.4 by the S. A. E. rating. The cylinders are cast in pairs and are of L-head construction, the valves being mounted on the left side. As an instance of thoughtful design it may be added that in the mounting of the magneto an adjustable coupling has been provided which permits six degree variations in the angular position of the armature, thus allowing proper timing regulation to be accomplished without difficulty. Further summarizing the specifications of the chassis, the change gear mechanism is of Brown-Lipe make, and of liberal size and strength in every part, the propeller shaft is equipped with two Spicer universal joints, and the differential is of Brown-Lipe pattern. The axles, both front and rear, are mounted on Timken roller bearings.

In the matter of equipment considerable improvement has been made besides that incident to the installation of the self-starting system. Double ignition is still employed, Splitdorf magneto and Atwater-Kent spark generator being the equipment. The magneto has been shifted from the right rear side of the motor to the left

front side, where it is more accessibly placed, however, while the system has been further improved by the addition of a four-way switch. By means of this device it is possible to operate either of the two complete ignition systems separately or to employ them both simultaneously.

Electric lighting is now a standard feature, a large dynamo driven by silent chain transmission from the pump shaft serving



VELIE "40" CHASSIS

to charge a 100-ampere-hour storage battery from which the lamps are fed. The meters and switches are mounted on the dash, except the tail-light switch, which is placed on the rear of the car adjacent to the tail lamp. In addition to the starting and lighting systems, the standard equipment includes a mohair top, rain vision windshield, speedometer, demountable rims and the usual outfit of necessary tools and parts.

To Correct Sagging of Old Frames.

The frames of cars which have been in use for several seasons should be tested to ascertain whether or not they have sagged and taken a permanent set. This

is best done by placing a straight-edge along the under side of the frame. If they have sagged the motor and the gear case should be lined up anew by placing thin brass "liners" under them to raise them to the required height. Where two universal joints are used between the motor and the gear changing mechanism exact alignment is not absolutely necessary, but where only one or none at all is used the alignment must be perfect. When making the adjustment the car should be loaded with the weight that normally is carried. If no appreciable binding can be felt when the motor is "turned over" by hand with the pet cocks open and a full load in the car, it is reasonably certain that the alignment is correct.

In cases where the frame has sagged badly the better way to do is to affix trusses under the sides. Owing to the fact that the construction of cars differs greatly the exact method of applying the trusses will vary. Generally the truss rods should be from ¾ to ½ inch in diameter and the struts over which they are placed from four to six inches high. The truss rods should be attached in front of the front spring shackles and behind the rear ones and if possible very nearly over the axles. The struts should be spaced apart about one-third the distance between the ends of the rods and firmly riveted to the frame. The ends of the rods also should be riveted to the steel side members of the frame, turnbuckles in the center of each permitting the frame to be drawn up into its original shape.

Tobacco Smoke to Detect Leaks.

Often leaks in the joints of intake manifolds may be detected by resorting to the "smoke test" much used by plumbers in determining the tightness of pipe joints. Similarly, when the evidence that a leak obtains is not perfect the diagnosis may in the majority of cases be made with certainty only after such a test has been made. The simplest way to go about the work is to attach a short length of rubber hosing to the air intake of the carburettor and blow the ordinary home variety of tobacco smoke through it. If a leak exists it will be made plain by the issuance of smoke.

Three Miles in "Taxi" for 25 Cents.

Montclair, N. J., soon will be the Mecca of all who desire to ride in taxicabs without paying a week's wages for the experience, a company having been incorporated for the purpose of operating taxicabs in that hilly little town, and its franchise does not permit it to charge more than 25 cents to any part of the town below Watchung avenue, from 7 A. M. to 10 P. M., while the rate from 10 P. M. to 7 A. M. is to be 50 cents. These are the prevailing rates charged by hackmen from the station, and the distances covered by them average about three miles for each trip.

UNCLE SAM MAY BUY 1,200 WAGONS

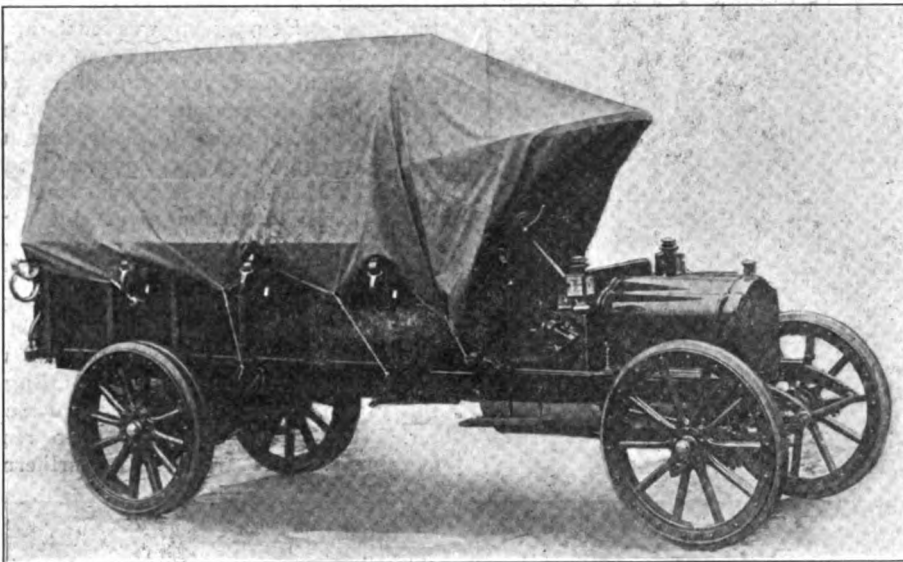
Unexpected Disclosure of Unsuspected Intentions—One Manufacturer Submits Vehicle for Official Test.

Two months ago when it was given out that the Russian government was making ready to purchase 2,000 motor trucks for the use of its army the size of the prospective order caused even those closely identified with the automobile industry to gasp. That Uncle Sam himself had any very large intentions of the sort was not even suspected until last week, when the White Co., of Cleveland, O., made known

on November 1. The total distance over which the freight trucks will run is 138 miles, practically all of which is a desert country, as accessible but as difficult in winter as in summer. All the freight received by the merchants of Burns henceforth will be routed through the town of Bend, where it will be transshipped to the trucks and carried through the desert to Burns. The people of that district are said to have welcomed the first truck with as much enthusiasm as the first transcontinental railroad was greeted.

Co-operative Buying Hits Nebraska.

Located far from the beaten line of travel, S. R. Benton, of Cairo, Neb., apparently is not aware that there already are in exist-



WHITE ARMY ESCORT WAGON AS SUBMITTED FOR TEST

that the United States government has in view the purchase of no less than 1,200 escort wagons for the use of its soldiers.

At the Army building in New York they know nothing about the matter, but that the White people know whereof they speak is evidenced by the fact that they actually have built a wagon in accordance with official specifications and have submitted it for the official tests. It is shown by the accompanying illustration.

This "escort wagon" is built on the regular one and one-half ton White chassis, with the exception of the wheels, which are considerably larger and heavier than those on the standard chassis of this type. The body is a spacious affair built with two-foot sides and ends. On a hickory framework above is carried a heavy canvas tarpaulin. The sides are provided with large iron rings and straps for carrying tent poles.

Motor Freight Line in Oregon Desert.

An automobile freight line has been established between the cities of Portland and Burns, Ore., and as a result they are fully eight days nearer to each other than last month. The first of the trucks arrived last week and a regular schedule began

ence more than a sufficient number of so-called automobile owners or co-operative supply associations to meet all needs and that in many places they are not warmly welcomed. At any rate, he is deeply concerned in the organization of one which he states will have its headquarters in one of the larger cities in Nebraska. Benton is at present engaged in unfolding his plan and in endeavoring to secure prices from accessory manufacturers.

Jury Would Not Give His Money Back.

"You can't expect a \$600 car to climb steep hills" appeared to be the gist of the opinion held by the twelve jurors in the case of F. E. Saunders vs. the Cedar Rapids Auto & Supply Co., of Cedar Rapids, Ia. Saunders had purchased two runabouts from the company for the use of himself and his family on and about their farm near Garryowen, paying \$1,200 for the two. Coming home with the cars he found that the exceedingly steep hills near his home refused to be overcome by the low-powered cars, and he promptly sued the company for the return of the \$1,200. The jury, however, could not see it that way and found for the defendant.

PACIFIC COAST REQUIRES SERVICE

Henderson, Home from Wide Swing, Discusses Trade Conditions in States Along the Pacific.

Reviewing the results of observations made during an extensive trip which included the principal Northwestern and Pacific Coast cities, Charles P. Henderson, general manager of the Henderson Motor Sales Co., of Indianapolis, Ind., gives emphasis to the fact that while trade conditions on the Pacific Coast and in the Northwest show remarkable activity, the situation requires direct and intelligent handling. The Henderson Motor Sales Co. is the general sales agent for Cole 30-40 cars, and Henderson's trip, which was mixed with pleasure, had for one of its purposes the better distribution of the Cole product in the territory visited. He was accompanied by L. Carter, president of the company, together with Mrs. Henderson, Mrs. Carter and Miss Henderson. In telling of his trip Henderson said:

"In Winnipeg and Vancouver trade conditions are unusually good, despite the fact that the automobile business is new in these cities. At the other points visited trade conditions are only fair. The tendency toward cheaper cars is quite evident in the cities depending largely on agricultural territory for support, while in cities depending on more diversified interests the higher-priced cars are still in demand.

"In my opinion manufacturers will be forced to introduce service departments, to be handled direct by the manufacturer or through a capable distributor, as there is a demand for quicker and better service to the owners. The companies now giving such service are getting the lion's share of the business. Although the Cole was introduced to the Pacific Coast only a little over a year ago, we now have a sufficient number of cars to warrant our establishing adequate service departments throughout that territory.

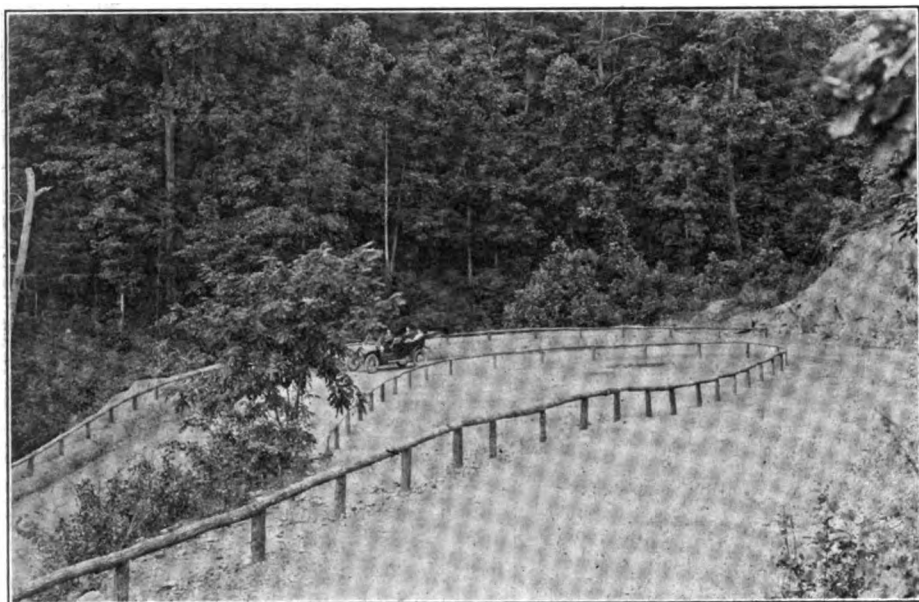
"In Los Angeles, which seems to be the Mecca of motorists, there is a very active trade at this time. The delightful climate permits the use of cars the year 'round. One point that the owners are learning is that cars driven twelve months of the year without a rest should not be expected to wear quite so long as in localities where machines are laid up in storage for a good portion of the year.

"Another thing that impressed me was the knowledge of automobile construction that is shown by the Pacific Coast distributors and agents. They want the very best of equipment, including tops, windshields and the like. On the whole I think the Pacific Coast trade, as that of the South, is in its infancy, and with better roads will rapidly increase."

ASHEVILLE'S AUTOMOBILE HIGHWAY.

Private Enterprise Gives the North Carolina City a Remarkable Road—Wonderful Curves and Rare Scenery.

Asheville, N. C., has the distinction of being one of the few places that has an exclusive automobile road for the free enjoyment of its citizens. It leads from the end of Charlotte street, at the foot of Sun-



"SWITCHBACK CURVE" ON ASHEVILLE'S AUTOMOBILE ROAD

set Mountain, around the face of the mountain to its summit—a distance of five miles. At the summit of the mountain the road connects with the crest of the Blue Ridge highway, which at present is in course of construction. It was opened to the public by Dr. E. W. Growe, of Asheville.

The entire length of the road to its summit has been laid with macadam and rolled until its surface is as smooth as a floor. It is of sufficient width to allow motor cars to pass each other at any point, while all approaches to curves are fitted with signs "Blow Horn." Wherever the special road intersects the regular wagon road that also leads to the summit signs have been erected giving notices that carriages are not permitted on the automobile road. This carriage road also has signs advising the public that automobiles are not allowed to travel on it.

The scenery along this new road is of rare grandeur. At each turn and all along the mountainside are delightful vistas stretching away to the north and west, showing the beautiful valley of the French Broad river, or Tahkeestee (the Indian name for "racing river"). Reaching the summit, the tourist finds himself at an altitude of 3,119 feet above sea level and about 1,000 feet above the city of Asheville, which is plainly visible at the foot of the mountain, while fully a dozen mountains, ranging in height from 3,000 to 6,500

feet, pierce the sky at the western horizon and form a fit frame to the beautiful picture.

Divides New York Into Three Districts.

Carrying out his plan of facilitating the issuing of licenses to chauffeurs and the registration of motor vehicles, Secretary of State Lazansky has divided New York State into three districts, with bureaus in New York, Albany and Buffalo, respectively. Commensurate with the fact that

Richmond, Nassau, Suffolk, Westchester, Rockland and Putnam.

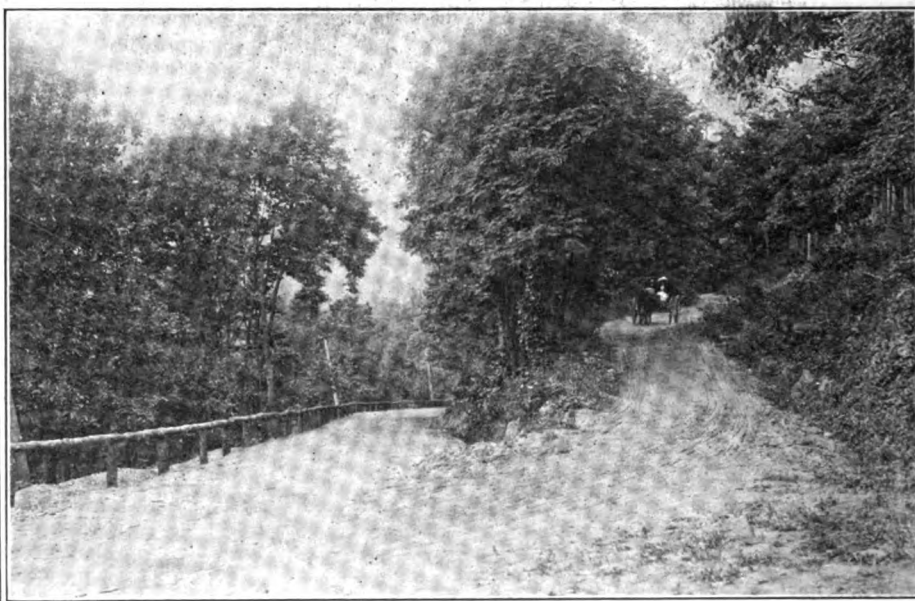
Albany—Albany, Broome, Chenango, Clinton, Columbia, Delaware, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Madison, Montgomery, Oneida, Orange, Oswego, Otsego, Rensselaer, St. Lawrence, Saratoga, Schenectady, Schoharie, Sullivan, Ulster, Warren and Washington.

Buffalo—Alleghany, Cattaraugus, Cayuga, Chautauqua, Chemung, Cortland, Erie, Genesee, Livingston, Monroe, Niagara, Onondaga, Ontario, Orleans, Schuyler, Seneca, Steuben, Tioga, Tompkins, Wayne, Wyoming and Yates.

No Prince Henry Tour Next Year.

Despite the fact that this year's tour for the Prince Henry Cup was such an unqualified success, there will be no repetition of the event next year. Adalbert Count Sierstorpff, vice-president of the Kaiserlicher Automobil Club, officially announced the abandonment of the European touring classic in a statement issued last week.

The cup, originally given by Prince Henry, was to be competed for three years in succession, at the end of which time it was to become the permanent property of the person or persons winning it in the third attempt. As, however, the cup went to the Royal Automobile Club of England this year, it became the property of the latter, Prince Henry disdaining to require a return of the trophy. It furthermore



WHERE THE AUTOMOBILE ROAD AND HORSE HIGHWAY MEET

more than 60 per cent. of all motor vehicles in the State are owned by residents of the metropolitan district, the bureau already existing in New York City will be so greatly enlarged that, while Albany will remain the secretary's headquarters, the bureau there will be reduced to small size and importance. The counties assigned to the three districts are as follows:

New York—New York, Kings, Queens,

has been decided to substitute a competitive reliability run with strict penalizations and speed tests instead of the social event it became this year. A new tour, under these changed conditions, will be held in 1913, at which time the run probably will be extended to cover portions of Austria, Italy and Hungary, and it is stated that several manufacturers intend building special cars for the run.

NEW ELECTRIC CAR FROM JACKSON

Standard's Production Proves an Attractive Creation—Ingenious Power Plant Construction and Body Arrangement.

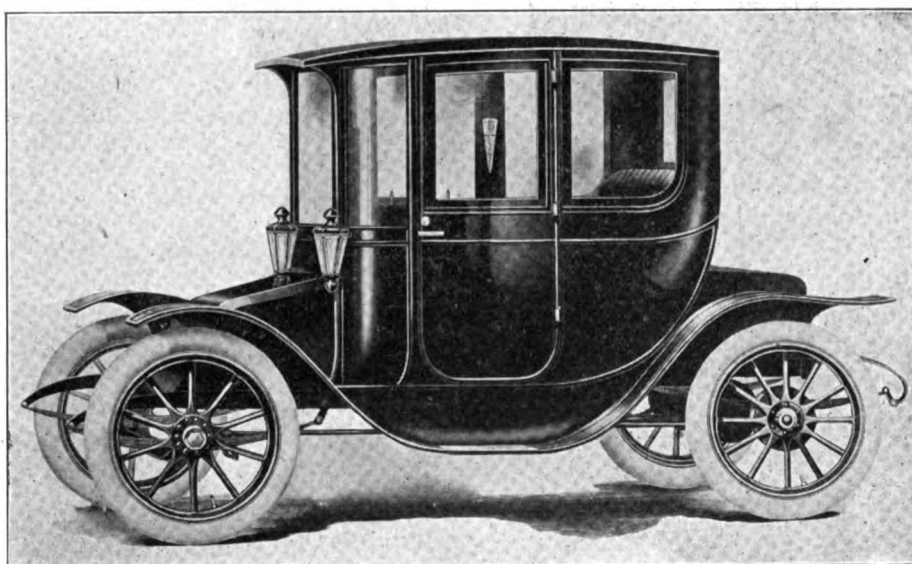
For several years the idea has prevailed that electric vehicle construction had been standardized to a point that admitted of practically no further improvement—at least until science had provided new methods and materials. The fallacy of the notion was revealed last year when several novelties were introduced and again is being demonstrated with the advent of a number of entirely new productions at this

added vibrational stresses which may be imposed on the assemblage when fitted with solid, or semi-solid, equipment.

In general design the vehicle, which sells complete for \$1,850, is of the modernized coupe type and of effective design. Owing to the liberal length of the chassis it is possible to secure ample interior accommodation, in the way of foot-room, as well as seating accommodation, and at the same time to leave the two battery compartments entirely free from the body. The result is that the interior fittings and upholstery are entirely isolated from the acid fumes of the battery, while it also is possible to secure ample ventilation for the latter. Another point in favor of the arrangement is that it renders the battery accessi-

to be proportioned with due regard to charging economy, and at the same time without introducing an extravagant amount of weight. The two rear trays, already mentioned, are of nine-cell capacity, the front section of the battery being divided into two groups of six cells each.

Because of its relatively high efficiency under heavy load and also by reason of its light weight a high-speed motor has been selected for the work of propulsion. The



THE STANDARD ELECTRIC COUPE IN ELEVATION

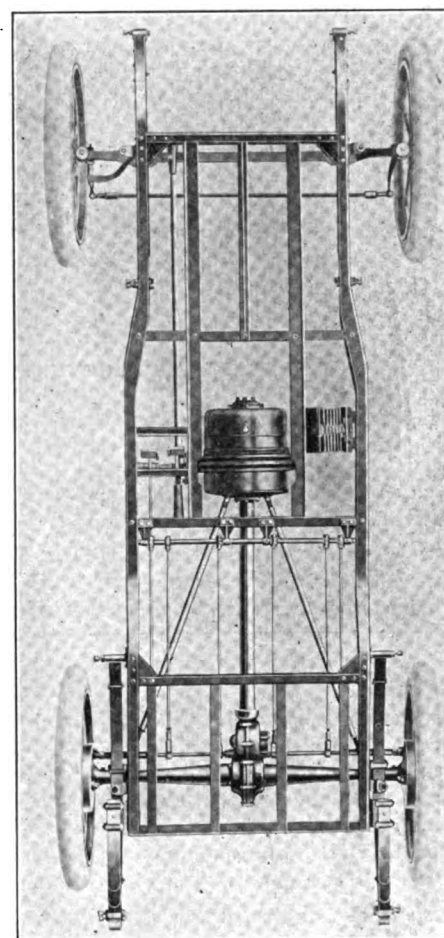
time. The new Standard electric, which is just being placed on the market by the Standard Electric Car Co., of Jackson, Mich., affords further illustration of the point. While combining the many advantages of thoroughly established electrical practice, it also is built in accordance with the tenets of modern automobile practice, as distinguished from the combination of carriage work and ill-assorted mechanical equipment which distinguished many of the early electrics.

Indicative that it is an automobile and not an electric carriage, in the strictest interpretation of the terms, the new Standard car has a drop frame, 39-inch wheel base, semi-elliptic springs in front and three-quarter elliptics in the rear, double, internal-expanding rear wheel brakes, 32-inch wheels shod with No. 1 Universal demountable rims and pneumatic tires. The matter of tire equipment is left open to the option of the purchaser to a certain extent, however, as either solid or cushion tires may be obtained. The point is noteworthy in this connection, as revealing thoughtful design, because the strength of the chassis parts has been calculated with an eye to

ble at all times without need of entering the body interior. In consequence the body map remain locked at all times even when the mechanical parts are undergoing slight adjustment or repair.

The general equipment is of thoroughly approved pattern. The interior is illuminated by means of corner lights, which are held to be superior as throwing the light from behind the occupants, instead of directly over their heads and into their eyes. The external lighting equipment consists of the usual dash and tail lamps. The upholstery is of well-selected material, liberally cushioned and proportioned. The finish is commensurate with the mechanical qualifications of the machine.

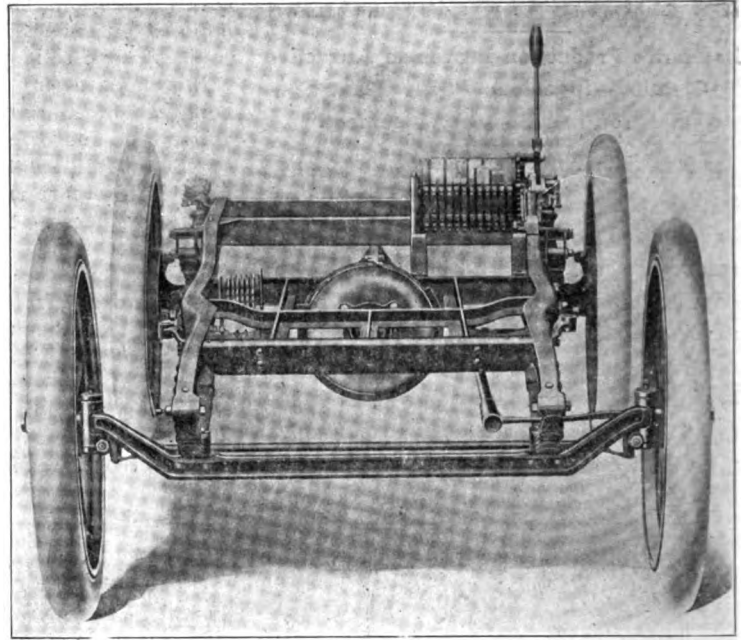
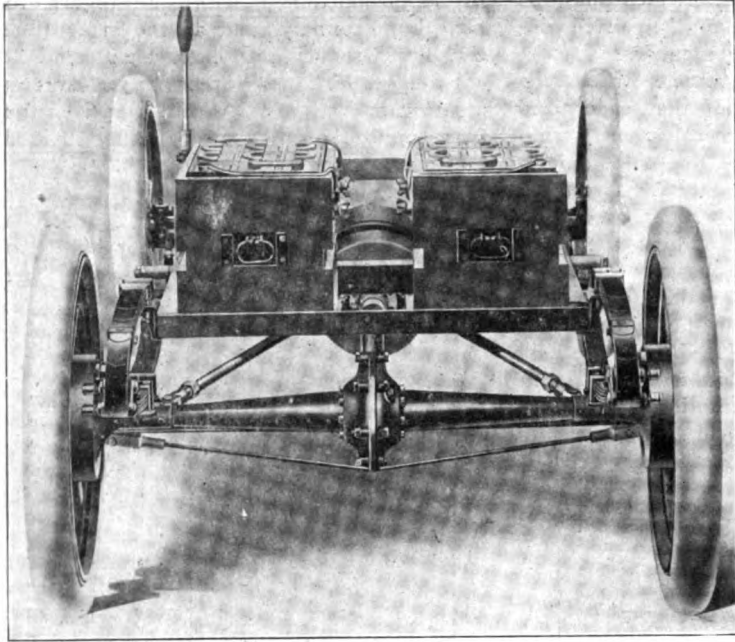
In arranging the battery special provision has been made to secure ample clearance for the rear axle without elevating the chassis to the point of instability. The rear section of the battery is divided into two sections, which are separated by an open space of several inches, thus being protected from risk of injury due to the striking of the body against the axle. The standard equipment is 30-cell, 11-plate Ironclad Exide—a battery which is thought



STANDARD ELECTRIC'S CHASSIS

type employed is rated at 48 volts, 26 amperes and 1,650 revolutions per minute. The frame is made of a single steel casting, the armature and commutator being of small diameter and light weight, thus reducing their peripheral speed and inertia to a minimum. The bearings are provided with extra large lubricating reservoirs, which are protected in such a way as to prevent the escape of oil or the entrance of dirt and dust. Special pains have been taken in working out the design to render the motor sparkless at all speeds and to give it as high and uniform a degree of efficiency as possible together with low operating temperatures. These features, as well as the protection of the entire machine by the frame housing tend to render it long lived and free from troublesome tendencies.

The motor is rigidly connected with a propeller shaft which runs within an en-

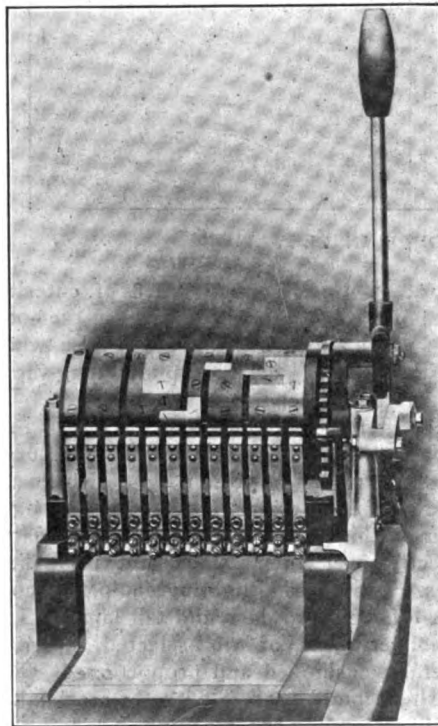


SHOWING ARRANGEMENT OF CONTROLLER AND DISPOSITION OF STANDARD ELECTRIC'S BATTERY

closing torque tube with which the motor itself swings in accommodating the flexure of the rear springs. To this end the frame casting is encircled by a gimbal ring which is mounted in trunnions on either side, the latter being supported on a suitable cross frame member. The torque tube itself is stayed to the rear axle by means of diagonal braces which run to the outer ends of the axle, thereby rendering the entire mechanism essentially rigid. The reduction gearing is located entirely in the rear axle housing, and is of the double step-down type, embodying one pair of bevel gears and one pair of spur gears, the driven member of the latter being the axle driver, which is built integral with the floating member of the differential.

The axle is a trifle out of the ordinary, being what is termed the three-quarter floating type. In this form of construction, as distinguished from the full-floating axle, in which the wheels are mounted on the axle tube ends and are entirely independent of the driving mechanism as far as load-bearing is concerned, but one row of balls is employed in supporting each wheel. The

driving shaft in either end of the axle is rendered rigid with its wheel and floats in the differential bearing; it thus exerts a steadying influence on the wheel and preserves the alignment of the bearings.



STANDARD DRUM CONTROLLER

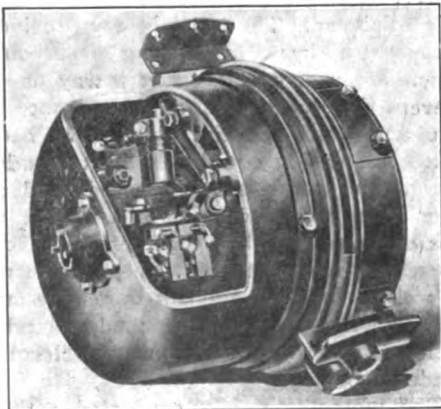
The front axle is unusual in its employment of the so-called reversed Elliott type of steering knuckle, which is to say that in which the knuckle proper is hooded over the end of the axle, the latter having merely an eye in its extremity, instead of the more common yoke. The axle is of I-beam section and dropped to lower the center of gravity of the car. The car is mounted on

ball bearings throughout, special dust-proofing provisions having been made in each mounting.

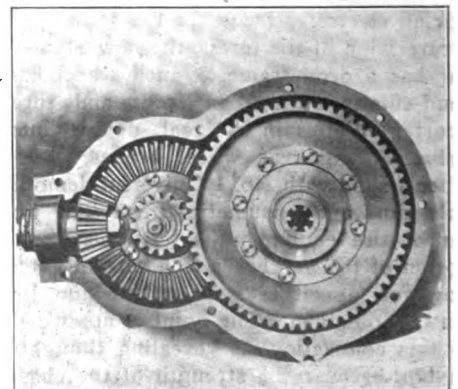
The control mechanism is of the standard pattern, having a continuous-torque type of drum controller, side-lever steering and double pedal mechanism for operating the brakes. This feature, together with the use of rear wheel brakes exclusively, is held to be advantageous, since it affords equal retarding facilities with both brakes and does not tend to strain the transmission unduly.

Computing Ratio of Revolutions.

Owing to the construction of differentials, one rear wheel will rotate at double normal speed if the other is held so that it cannot move. This should not be forgotten when it is desired to ascertain the ratio of engine revolutions to rear wheel revolutions. Both of the rear wheels should be jacked up when such an operation is undertaken. Also care should be taken to see that both wheels rotate with equal freedom—that they rotate in unison, in other words—for if the brake on one wheel drags the computation will be wrong.



THE STANDARD MOTOR



THE DOUBLE REDUCTION DRIVE

Clutch Brakes; Their Development and Purposes

Contrary to the general impression which seems to have gained much ground among persons who are not intimately connected with the automobile industry, the purpose of a clutch brake is not to assist in bringing a car to a stop. Just how the impression gained prevalence is not very difficult to understand. As far as the average owner is concerned, a brake is a brake, regardless of its position on the chassis and he cannot conceive of it being put to any other use than to stop the car. That ser-

ployed because of their professed familiarity with "everything pertaining to a car," show a surprising amount of ignorance when the subject of clutch brakes is mentioned.

Briefly, the purpose of a clutch brake is to prevent that part of the clutch which is connected to the change gear mechanism from "spinning" when the clutch is disengaged. That is its principal function. Also it is designed to prevent "dragging" which results when the clutch members do not

desire for a "talking point" rather than for reasons of increased efficiency or ease of control. This is best made plain, perhaps, by the fact that very heavy clutches often are without any means to prevent the excessive spinning which must take place. Light clutches, in which the inertia very quickly is dampened by the friction in the bearings, on the other hand, just as often are fitted with brakes, which, as suggested previously, are heavy and cumbersome out of all proportion to the work for which they are intended.

Not that manufacturers have an easy problem in designing and fitting an all around efficient clutch brake. Far from being simple, it is a great deal more difficult than might be supposed and entails considerable thought and experiment. For instance: The brake should be so arranged that in changing from a low gear to a higher one the clutch member attached to the change gear mechanism should be slowed down, but when the change from a high to a lower gear is made, spinning should be encouraged rather than stopped.

The reason for this becomes apparent after a little thought. When a car is driven on a low gear and a change to a higher gear is made, two gears rotating at different speeds have to be brought into engagement. The driving gear is rotating at clutch speed and the driven gear is rotating at a speed proportional to the speed of the rear wheels. Before the teeth on these two gears will engage, the gear wheels must rotate at a certain ratio of peripheral speed governed by the number of teeth in each. When the car is driven on high gear, the driving gear rotates slower than it does when the car is driven on low gear. Therefore when a change from low to a higher gear is made, the speed of the driving gear, which is attached to the clutch, must be decreased to prevent the teeth of the two gear wheels chattering over each other until their speeds have reached the proper ratio to permit the teeth to engage.

Similarly, when the car is driven on a low gear the driving gear rotates faster than it does when the car is driven on a high gear. From which it becomes plain that when a change from high to a lower gear is made, the rate of rotation of the driving gear should not be decreased, but rather it should be increased for the reason that has been pointed out. As it is impracticable at present to increase the speed of the driving gear when a change "down" is made, the next best thing to do is to let well enough alone, or, in other words, to allow the clutch to spin when changing to a lower gear.

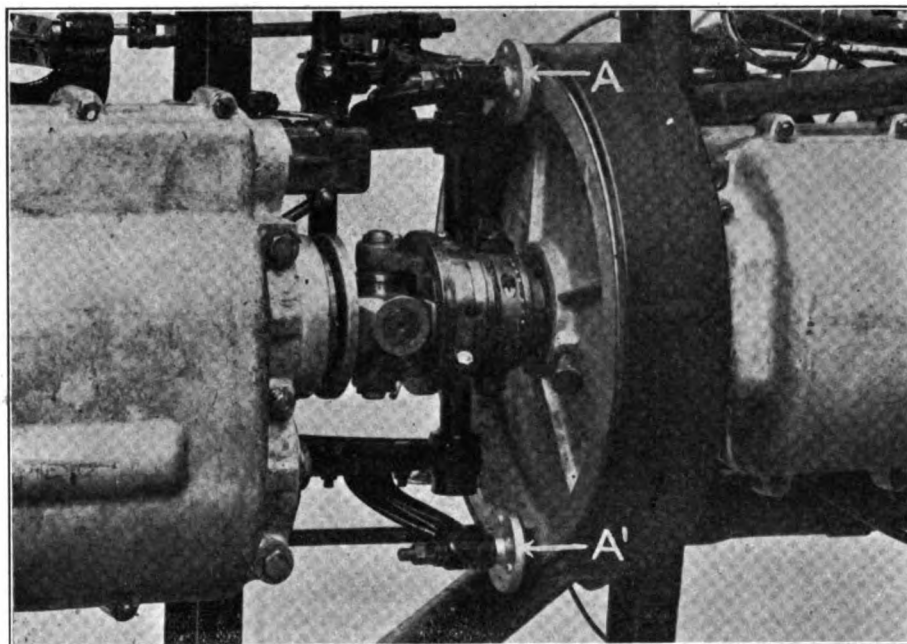


FIG. 1—PIERCE-ARROW ARRANGEMENT OF TWIN CLUTCH BRAKES

vice or emergency brakes sometimes are placed on the propeller shaft undoubtedly is partly responsible for the wrong impression. Also the fact that in some makes of cars clutch brakes are of sufficient size and weight actually to stop a car suggests a possible reason for the prevailing misapprehension.

But the layman, the individual owner who interests himself chiefly with the steering of his car and has little time or inclination to delve into its innermost recesses and learn the why and wherefore of things in general, is not the only one to whom the purpose of a clutch brake and the functions of the device are a mystery. He scarcely can be blamed for his lack of understanding for the reason that in not a few cases the salesman who sold him the car did not even know of the existence of a clutch brake, much less the reason for its being there. Furthermore, it has been brought to light in not a few instances that even professional chauffeurs, em-

disengage fully and immediately when the clutch pedal is depressed.

The use of the clutch brake as regular equipment is a comparatively recent development. Up to a year or two ago they were almost as scarce as the proverbial hen's teeth. But at present they are used by a large number of manufacturers and their popularity undoubtedly is on the increase. As a matter of fact, clutch brakes are this year a feature of the products of several manufacturers who never before have so equipped their cars. Which goes far to prove that despite assertions to the contrary, the device really has merit, particularly in view of the fact that among the cars on which clutch brakes will be shown for the first time this season are some of the best known in this country.

But while there is a number of new clutch brake designs there is an equal number of old ones, and several of those that are in the latter category suggest that their presence is due in no small measure to the

Theoretically, a clutch brake never should be sufficiently powerful to stop a clutch immediately, though many of them do that very thing. Instead, it should merely slow the clutch down gradually. When the clutch is stopped while the car is running, practically the same conditions obtain as when the clutch is spinning. Which is to say that in the former case only one gear is rotating, the gear which is driven by the clutch being stationary. Therefore when the rotating gear and the stationary one are brought together a terrible din is produced by the teeth of the one chattering over the teeth of the other, in addition to which there is grave danger that the teeth of either may be chipped. The teeth of the two gear wheels slide, or rather bounce, over each other until the stationary gear has been set in motion and it and the clutch are rotating at the proper speed for the teeth to engage properly. From which it may be seen that the designing of a properly working clutch brake is by no means an easy task, for in addition to accomplishing the results set forth it must be as simple as possible and contain the minimum of moving parts. Also that portion of it where the necessary friction is obtained should be easily renewable at little expense.

The principal difficulty has been in arranging a clutch brake so that it will operate to slow down the clutch member when a change to a higher gear is to be made, but will permit the clutch to spin when a change down is made. While numerous devices, more or less complicated, have been used, nearly all of them have been relegated to the scrap heap. Practically the only remaining method embraces the manipulation of the clutch pedal, the clutch brake being interconnected with it in such a way that when the pedal is depressed to the limit the clutch brake becomes operative, but when it is only depressed part way the clutch is allowed to spin.

As efficient as this method is, and it is used by a number of manufacturers with excellent results, it is open to the objection that it requires a certain nicety in the use of the clutch pedal which not all drivers have the forethought or the inclination to use. As a matter of fact there are relatively few drivers who treat their cars with the consideration to which they are entitled, and it is likely that the disfavor into which clutch brakes have fallen with some is directly attributable to this. Incidentally it is genuinely astonishing that under the abuse to which some of these mechanisms are subjected they survive as long as they do. At the least it is a tribute to the excellence of modern materials and methods.

In general there are three types of clutch brakes which are used to any great extent. Perhaps the most familiar is that which embraces a cup and cone. In this case either the cup or the cone is arranged to be held stationary, while the other, usually

made of a different kind of metal and sometimes faced with leather or fiber, rotates with the clutch. When the clutch is disengaged the cup and cone are brought together, after the manner of the two parts of a cone clutch, and the resultant friction slows down the clutch member. This design lends itself well to interconnection with the clutch pedal, or that member of the clutch which is withdrawn from the other, but it has not attained to any very great amount of popularity for the reason that it is not as easy of adjustment as some other types, nor can its parts be replaced without dismantling a considerable portion of the clutch assembly. Obviously it is perfectly simple, but it is likely to be "fierce" and to grab unless either of its

er he desires to change to a higher or a lower gear.

The disks themselves are free to rotate and are faced with fiber. Also they are slightly offset so that when the clutch member is brought into contact with them they rotate and wear is minimized. At the same time the friction which is obtained is sufficient to accomplish the ends desired and instead of being worn into the grooves the fiber faces wear evenly. They may be replaced in a very short time when necessary and at a very slight cost.

Overland Model 61 cars are equipped with a very similar arrangement, the difference being that but one disk is used. The disk is mounted at one side on a bracket, which also serves to support one

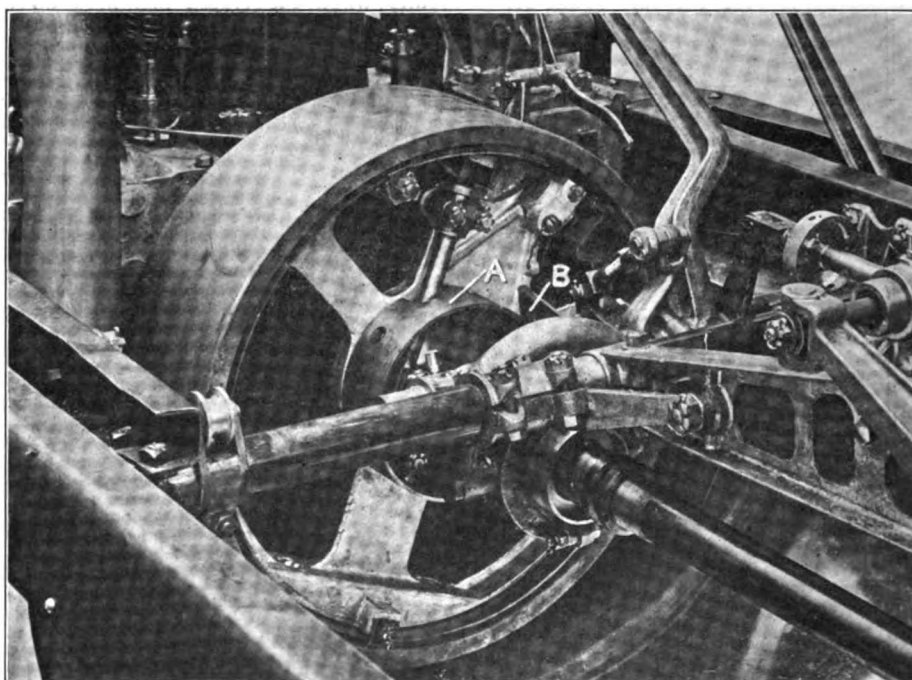


FIG. 2—DETAILS OF PEDAL ACTUATED CHADWICK CLUTCH BRAKE

members is faced with leather or fiber, which is objectionable because of the difficulty of replacing the facing.

One of the latest types of clutch brake and one which is used this season for the first time by two of the more prominent manufacturers, embraces the use of a flat disk or disks which come in contact with the clutch when it is disengaged and prevent excessive spinning. The Pierce-Arrow arrangement of this general design is shown in Fig. 1.

As may be seen in the illustration, two disks, A and A', are mounted diametrically opposite to each other on supporting arms in such a way that when the female member of the cone clutch is fully withdrawn it presses against them and its motion is partly arrested. Of course when the female clutch member is not fully withdrawn it does not come in contact with the disks, the operation of the brake thus being subject to the will of the driver, who may use it or not, according to wheth-

end of the cross shaft which carries the clutch pedal. In the Overland construction, also, the disk is fiber-faced and is slightly offset so as to rotate when the clutch member is brought into contact with it. The disk is held in position by a spring, the tension of which is variable.

Chadwick practice, which is illustrated in Fig. 2, shows an entirely different arrangement. The clutch itself is of the internal expanding variety, and as it is of comparatively heavy construction there is need of a clutch brake that shall be positive in action. In the design that is used, the manufacturers have succeeded in getting a clutch brake that is "sweet" and uniform in action as well as being positive. The brake consists of two separate parts, the drum, A, which is bolted fast to the internal member of the clutch, and the shoe, B, which is attached to and actuated by the clutch pedal. The brake shoe is formed of an adjustable, flat, steel spring, the friction material being leather. The leather is riv-

eted to the end of the steel spring and may be renewed quite easily. One of the noteworthy features of the arrangement is that the brake shoe presses against the drum at an angle so that no matter how tightly it may be adjusted the clutch always may be fully disengaged.

A somewhat similar arrangement, illustrative of Corbin practice, is shown in Fig. 4. It differs from the other, however, in that the rim of the clutch itself takes the place of the drum which is used as shown in Fig. 2. The Corbin clutch is of the cone variety. Actually, the similarity concerns only the brake shoe; in method of attaching it is quite different. Whereas in the Chadwick design the brake shoe is attached to the clutch pedal and actuated by it, the Corbin brake shoe is attached to one of the cross shafts but does not move with it. It is brought into contact with the clutch, or rather the clutch is brought into contact with the brake shoe, when the

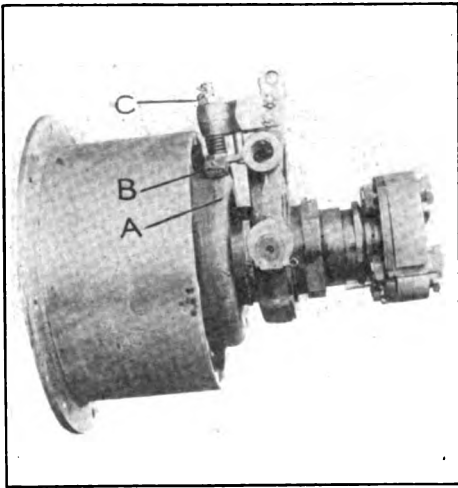


FIG. 3.—PACKARD CLUTCH AND BRAKE

male clutch member is withdrawn. The friction material is leather and its renewal does not require a great amount of either time or money.

Also in the general class of clutch brakes in which the brake shoe is moved into contact with the clutch by the movement of the clutch pedal, is the Packard mechanism, which is shown in Fig. 3. The whole arrangement is shown very clearly in the picture. A multiple disk clutch is used and the outer casing, A, serves as the drum for the clutch brake. Against this presses the brake shoe, B, which is faced with an asbestos material. The effective pressure which may be obtained between the two is governed by a spring and may be adjusted by means of the lock nut, C. The whole assembly is particularly simple and is attached directly to the clutch pedal. When the pedal is depressed to disengage the clutch, the whole mechanism is rocked forward and downward into contact with the outer casing of the clutch. In this instance, also, renewal of the friction material is a simple matter.

Lozier construction, illustrated in Fig. 8, shows still another form of clutch brake and one which seldom is used, probably because of the relatively high cost of manufacture. It is not unlike the cup and cone variety of brake, in action at least, though in this case both cup and cone are flattened out and form two plain disks, one of steel and the other of bronze. The steel disk is formed integral with the clutch shaft and is not shown in the picture. The bronze disk, A, remains stationary, or very nearly so, and is held in position by means of a cross frame member.



FIG. 4—SIMPLICITY OF CORBIN STOP

When the clutch, which is of the multiple disk variety, is disengaged, the bronze disk is moved through linkage connected to the clutch pedal a fraction of an inch and brought into contact with the rotating steel disk on the clutch shaft. The movement of the clutch pedal, however, only controls the pressure between the two disks within certain limits. The actual pressure obtained is controlled by the tension on the springs through which the clutch pedal movement is transmitted to the movable bronze disk. The tension on these springs may be varied through a wide range, permitting considerable compensation for wear before renewal of the bronze disk is necessary. The insertion of a new disk is a simple matter and should not require more than a few minutes.

Not all manufacturers incline to the use of the clutch brake, not merely because it entails added manufacturing cost but because of deep-rooted convictions that it is an unnecessary adjunct that increases the complexity of their products without material benefit. In some cases just plain prejudice against the device is largely responsible for its non-appearance on cars which manifestly would be improved by its addition, though it is only fair to say that in the majority of cases, manufacturers do not permit sentiment to govern their actions and are quick to adopt meritorious devices regardless of prejudices against them. Be that as it may, however, the fact remains

that there are on the market today several makes of cars in which a spinning or dragging clutch constitutes an abomination. One manufacturer has realized his deficiency, but rather than fit a clutch brake he relies on the friction in the bearing which supports the male portion of his clutch. Furthermore, he makes provision whereby the bearing may be tightened when it has worn so that the tendency for the clutch to spin is unchecked.

But as previously has been stated, such cases are rare and really are the exceptions which go to prove the rule that manufacturers on the whole are extremely liberal and their designers are not slow to realize that, literally, "it is the small things that count." Of course where a clutch is small and light a clutch brake really is unnecessary, but when a clutch is heavy and its inertia is considerable, a clutch brake is a necessity and cannot justly be classed as a luxury or a useless complication.

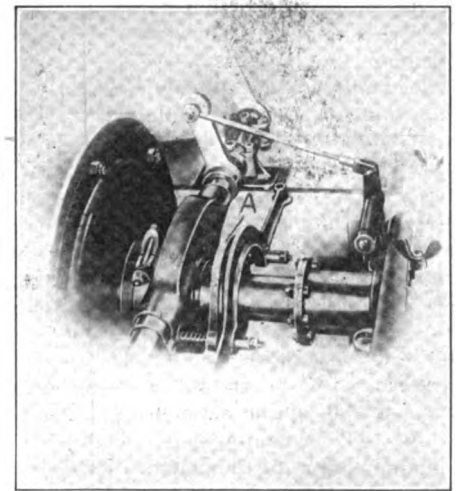


FIG. 5.—ILLUSTRATIVE OF LOZIER DESIGN

It is comforting to contemplate that such advances as have been made in the perfecting of cars as a whole have been due very largely to efforts on the part of designers to refine details and eliminate or simplify small parts. It is perfectly reasonable to expect, therefore, that in the not far distant future an even better solution of the clutch brake problem will be forthcoming.

Jones Produces a Hub Odometer.

Supplementing its regular line of speed and mileage recording instruments, the Jones Speedometer Co., New Rochelle, N. Y., just has placed on the market a new type of Jones odometer which is designed to be attached to one of the wheel hubs of vehicles. As its name suggests, the new instrument registers mileage only and is entirely automatic in operation. To discourage unauthorized persons from tampering with the device after it has been placed in position, it is sealed and cannot be disconnected, nor can the recorded mileage be altered without the owner's knowledge.

PULLMAN TO PRODUCE TAXICABS

Standard Touring Chassis Used, With High Class Body Work—Will Not Be Sold Through Dealers.

Taxicabs have been added to the line of cars produced by the Pullman Motor Car Co., of York Pa., and in connection with this approach to the borders of the commercial vehicle field the company announces that instead of marketing the machines through agents or by the roundabout method of subsidiary companies it will sell them direct from the factory to the purchaser. In accordance with the direct

which, therefore, affords unobstructed entrance to the vehicle and an unobscured view. The device is further noteworthy in that the top can be raised or lowered without the operator having to dismount, merely by swinging it to one side—as sometimes is done with spray hoods on motor boats—the bows being arranged to fold down against one of the side rails. The raising and lowering is assisted by a concealed spring and lever arrangement, while the employment of steel tubing exclusively for the framework is said to give unusual strength with a minimum of weight.

To Market the Levraut Tire Valve.

That rare article, a new tire valve, styled the Levraut, is about to be placed on the

CLUTCH TEST AS A TROUBLE FINDER

Walter White Tells of Its Application—Locates Proper Distribution of Load and Traction Power.

Though the average individual is likely to view a clutch test as a clutch test and nothing more, it really has much greater significance and under the observant eye of the expert reveals a number of things that scarcely would be suspected by persons not conversant with engineering practices. In remarking the fact and in commenting on the San Francisco Examiner's recent commercial vehicle contest, Walter White, of the White Co., brings to light an interesting circumstance which bears out the contention that in a way a clutch test is in reality a test of the whole vehicle. The particular feature which the clutch test makes plain involves the proper balancing of the vehicle and its load distribution.

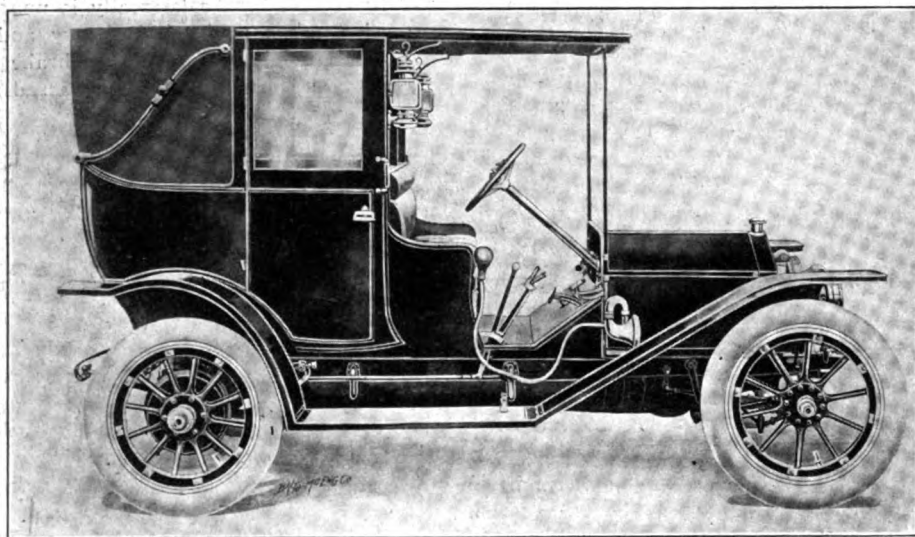
"Pleased as we are about winning this economy contest," he said, "to my mind it is not the most striking feature of the event. Any truck might have been fortunate enough to win a two days' economy contest. It takes weeks and months of such performance actually to demonstrate real economy in operation, but the brake and clutch contest did prove some things for which we have been contending in truck construction.

"To my mind, the clutch contest was a whole commentary in itself upon the proper balancing of a motor truck. In this clutch contest the trucks were run upon a platform, near one end of which was an eight-inch block. The front wheels of each truck were placed against this block, the engine speeded up and the clutch engaged. Each truck was required to stall its engine or spin its rear wheels in order to make a perfect score.

"The White trucks contesting did not stall their engines nor spin their rear wheels; they simply climbed over the eight-inch obstruction—a demonstration of the engine's power perfectly applied to the rear wheels for traction.

"Eighty per cent. of the trucks entered in this contest either spun their rear wheels or stalled their engines on this test, showing proper and powerful clutch construction, but to our minds also showing that too large a percentage of the load is carried on the front wheels. As a result, when bad roads are encountered, the front wheels have a tendency to act just as they did against the eight-inch obstruction—that is, to stall the engine or spin the rear wheels instead of climbing over.

"It seems to us that the greatest lesson of this truck contest was taught by our trucks, which showed that a truck can be so balanced that the traction is almost perfect."



PULLMAN 30-HORSEPOWER \$1,500 TAXICAB

method of selling, the company has placed what it considers a low price, \$1,500 net, on the cab.

The chassis is the same as that of the 30-horsepower Pullman pleasure car, the motor being 4 1-16 by 5. Ample spring suspension is provided and a high quality of aluminum alloy is used in the crank and transmission cases in order that the car may be kept light and easy on the tires. In recognition of the needs of its service the vehicle has been built to afford easy turning and a handy getting in and out of traffic.

The body, which is equipped with deep upholstery, accommodates five passengers. Although the vehicle is constructed for commercial use, the finish is of a grade comporting with the reputation on which the company prides itself in connection with its bodies. The equipment includes 34 x 4 tires and demountable rims, gas headlights, gas tank, pedestal side lamps, oil tail lamp and the usual minor tools.

Making the Top More Convenient.

Reverting to the form of the one-time familiar canopy top, a British inventor just has perfected a new style "hood," which is supported at the front and rear only, and

market by the Central Machine Supplies Co., 96 Warren street, New York City. The device, which is made without springs or washers and has but five parts, including the outer shell and the hollow screw by which it is attached to the inner tube, is the invention of M. Levraut and was patented last August. Its principal features are a fine-bore tube, which replaces the stem of the standard valve, a short length of rubber tubing which surrounds its lower extension, an outer shell which is flanged at its lower end, and the hollow attaching screw. It has no external threads and is interchangeable with valves of other types. Inflating the tire lifts the rubber valve tube from the stem which it surrounds; when inflated the tube clings fast to the stem and closes the opening therein, forming a perfectly tight seal.

Why Inlet Valves Need Less Clearance.

Owing to the fact that cold gas continually is being drawn over inlet valves they never become as hot as do exhaust valves and, therefore, they expand less. For this reason the amount of clearance between the inlet valve stems and the push rods should be less than that which obtains in the case of exhaust valves.

PREMIER CARS IN DESERT SETTING

Indianapolis Company Stages Private
Automobile Show—Other Hoosier
Dealers to Follow Suit.

Cacti, sagebrush and plenty of sand, together with other stage effects calculated to give a vivid stage setting representative of the Great American Desert, formed the feature of the "fall opening" or fall automobile show given by the Premier Motor Manufacturing Co. in Indianapolis, its home city, during the week October 23d

Premier creations. The company's "fall show" was such a success that other manufacturers and dealers in Indianapolis have announced similar shows for presenting their 1912 offerings to the public; in fact, the local trade association has set one week of the present month for a general exhibition or "opening" of the sort.

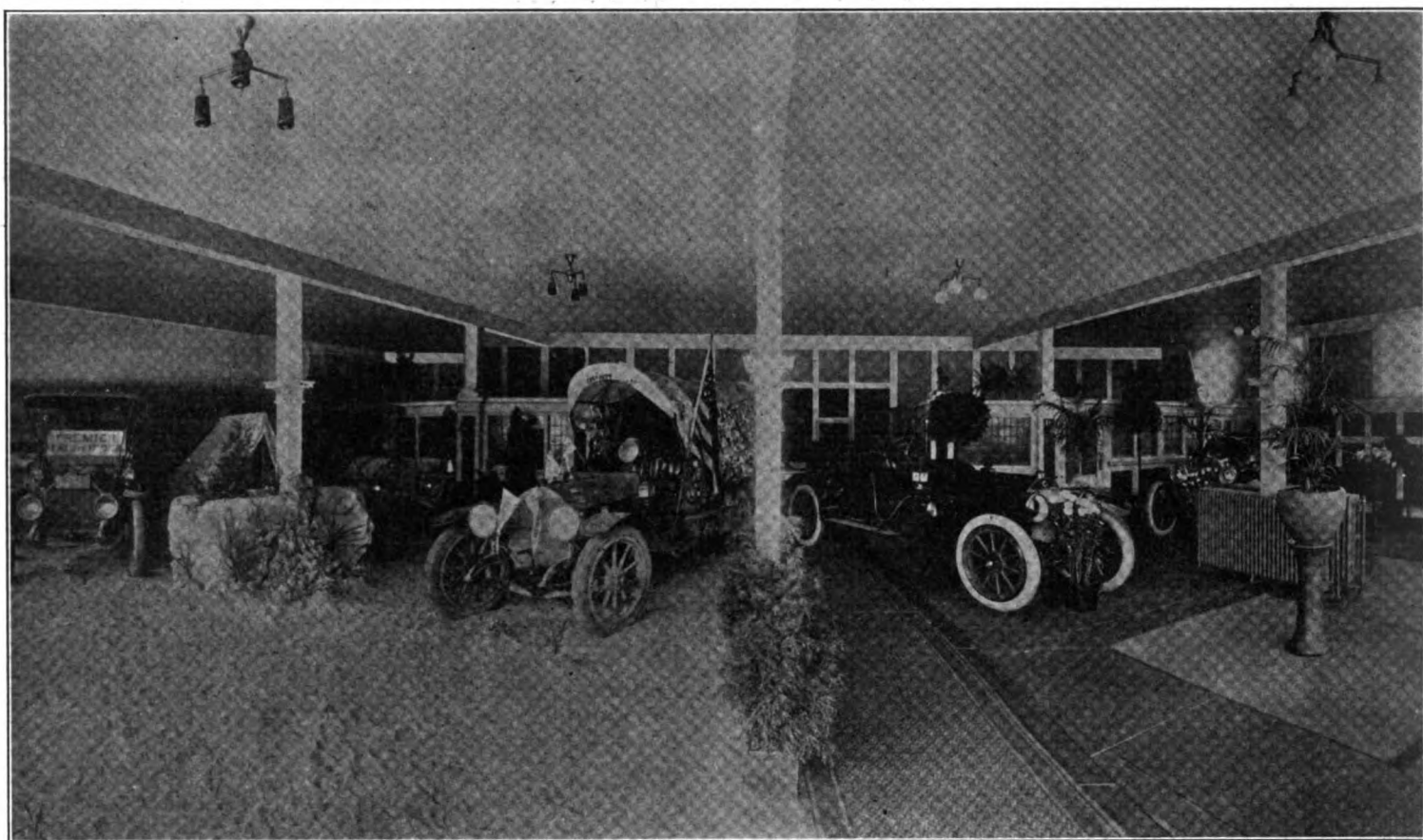
Dealers Pay for Chauffeur's Guilt.

Shortly before a suit for \$20,000 damages filed by Miss Emma Horton, of Nashua, Ia., against the Morris Motor Car Co., of Waterloo, Ia., came up for trial, the defendant company last week settled it out of court by paying \$1,000 to the com-

IMPORTANCE OF CAPABLE DRIVERS

Stone Rates Them 80 Per Cent. of Truck's
Success—Teamsters and Professional
Chauffeurs Compared.

A number of automobile men were discussing the operation of motor trucks the other day, when one of them, who is a well-known commercial vehicle manufacturer, took occasion to recount a recent experience. Happening to see one of his trucks running along the street, he stopped it and climbing up beside the driver rode



DESERT SETTING FOR THE PREMIER "HOUSE SHOW" IN INDIANAPOLIS

to 28th. The show was in line with the growing popular conviction that the automobile is an all-the-year-round vehicle, and its purpose was to stimulate the fall and winter trade.

Being unhampered by any uniform scheme of decoration, such as obtains in the big national automobile shows, the Premier company was at liberty to indulge its own ideas. In taking advantage of this freedom it chose to represent a scene taken from the ocean-to-ocean tour of twelve Premier cars last summer when the 40 tourists in the party camped out in the desert en route from the Atlantic to the Pacific coast. This elaborate setting occupied about one-half of the space in the Premier salesrooms, the other half being taken up with series M models, the newest

plaintant. The case caused considerable interest in the Middle West, as it involved the question of responsibility of a dealer for the carelessness of one of his employees. In the bill of complaint filed by Miss Horton she alleges that in June, 1910, her father purchased an automobile from the Morris company and asked a representative of the company to drive him and his family home in it. On this trip the car turned turtle while going at a high rate of speed, and the occupants were thrown out, all receiving more or less serious injuries. Horton himself was so dangerously wounded that he died before reaching home. Enough witnesses were subpoenaed to convince the company that its chauffeur was responsible for the accident and it hastened to settle the claim out of court.

with him for some little distance in order to observe the working of the machine. The truck was a new one and the driver, as he recalled, a raw recruit from the ranks of the teamsters. The man obviously was of a cautious temperament and proud of his new job; furthermore, he handled the sturdy machine gingerly, as though he were momentarily expecting it to fall apart. Observing that he was careful to keep the speed below the limiting point of the speed regulator with which the machine is equipped, the manufacturer finally inquired, "Why don't you open her up and let the governor take care of the speed?"

"Oh, sure an' that would hur't the injun," was the reproachful answer.

Most motor truck authorities will agree that men of this type are the exceptions—

which prove the rule of incompetence. But that the best and most trustworthy drivers for commercial vehicles are drawn from the teamster class is now pretty generally agreed, and in seeking material for new drivers more attention constantly is being paid to this class. Nor is the difficulty of securing good drivers one to be minimized. In the opinion of Charles E. Stone, sales manager of the Alden Sampson Co., the value of the driver may be as high as 80 per cent. out of a possible 100 of perfect operation.

"I believe I am safe in saying that 80 per cent. of the successful operation of a truck rests alone in the driver's hands," to quote him exactly. The opinion was expressed at a meeting of the Motor Truck Club last week, in connection with a paper in which Stone thoroughly reviewed the driver situation.

"There can be no hard and fast rules or methods established for the employment of such men," said he, "and no one class from which to draw upon. Offhand it would seem as though the professional chauffeur represented the best available material, but, as a matter of fact, both the dealer and the purchaser cannot safely rely upon this source.

"The major portion of the so-called chauffeurs are unwilling to take up the commercial vehicle as a filler-in between seasons in the automobile business, and it has proved most unprofitable to employ men who have no serious intention of remaining. The speed mania in the majority of instances has claimed this class of labor and thereby unfitted them for the slower-going merchandise vehicle, and the rough, dirty work in connection with the truck is not attractive. I think that we must look more to the present drivers of the horse-drawn vehicles from whom to recruit our force.

"Prime requisites of the motor truck driver are a fair physique, ability to master certain fundamental principles of the vehicle, a cool head, sobriety, previous experience in driving (particularly in congested traffic), rules of the road and local automobile laws, a willingness and desire to absorb information as to the care and operation of the machines and, above all, an interest in the machine entrusted to his care and fidelity to the owner.

"Anyone agreeing to accept the responsibility and the care of operating and taking charge of a piece of machinery—locomotive, if you will—which may represent a value of as much as \$6,000 or \$7,000, certainly should not limit his interest to the mere driving of the vehicle, but this interest should be sufficient to see that the machine entrusted to his charge is in every way prepared to resume its operation the next day. Personal pride and the desire to establish a reputation and thereby increase his salary as a recognition for services rendered would, to my mind, be a matter of course. No employer will hesitate to com-

pensate and advance the man who economically and efficiently runs a truck entrusted to him, and machines are installed as a result of such economic performance. I have in mind one man in this city who drifted into the motor truck business as a driver from the ranks of motormen, and by application, study and a desire to advance is now in charge of one of the largest and most successful motor truck installations in this country, with a salary in proportion to the responsibility.

"Up to a few years ago, when self-propelled vehicles were pretty much of an experiment and the buying public skeptical, a universal sales argument was that machines were so simple in construction and operation that practically anyone could drive them. Naturally the purchases paid little or nothing in excess to the wages of the general teamster. The result has been, except in rare instances, disastrous; and, unfortunately, in place of blaming himself and the over-zealous salesman for the troubles, the machine alone bore the blame. The more extensive installation and general spread of knowledge, however, has created a change in this regard, and I believe the majority of the sales offices and agencies are taking pains to educate the buying public up to the necessity of employing experienced and qualified men. To my mind, the very wisest investment and the greatest economy connected with the introduction of a self-propelled business vehicle is brought about by paying more money to the competent man and thereby affecting a tremendous saving through the elimination of breakdown and excessive wear.

"As a general thing, I believe the most satisfactory results may be obtained by having the purchaser select from among his teamsters or employes familiar with his delivery, the man embracing the greatest number of qualifications, and either sending this man to the truck factory or to the service department of the dealer for as long a tuition as possible, at least a month.

"Inasmuch as the personal interest items of such importance, it seems to me that each of us engaged in marketing trucks should employ every means in our power to foster such interest and co-operate with the owner toward this end, either by arranging a bonus system for satisfactory service or a prize to be awarded at certain fixed intervals. A few merchants are resorting to such methods with pronounced success. Another scheme was started in Philadelphia whereby the owners paid their drivers \$3 a day for every day that the truck operated satisfactorily and \$2.50 a day when it was out of commission. This particular truck is the only one in the city of Philadelphia of the make of that year now in commission.

"The hours of operation should be carefully determined upon and every effort made to prevent the shipping department imposing upon the driver. It is not to be

expected that a man running a 5-ton truck can continue to satisfactorily perform his duties on more than a 10-hour schedule, particularly when he is called upon to load and unload. Assistance should be given to him and a reasonable amount of time each day allowed for the inspection and care of the truck. As an organization working to improve existing conditions and endeavoring to enlarge the scope of the motor truck, it is up to us to educate the owners to the necessity to paying salaries in proportion to ability and to stimulate the drivers to renewed effort and interest and make both the friend and booster of the self-propelled vehicle."

England to Subsidize Military Trucks.

Realizing the enormous importance of motor vehicles in case of war, and its own dilatoriness in equipping its army with the modern means of transportation, the British War Office has worked out a provisional scheme for the subsidizing of gasoline motor trucks or wagons, built after January, 1910, and owned by civilians. United States Consul-General John L. Griffiths, at London, England, reports that the scheme provides that the vehicles will only be purchased in event of national emergency and will not be enrolled for hire purpose or for maneuvers. "The War Department," he says, "is to have the right to purchase on fixed terms any enrolled vehicle when the War Minister certifies in writing under his hand that the country is in a state of national danger or if a proclamation be issued under the reserve forces act of 1882.

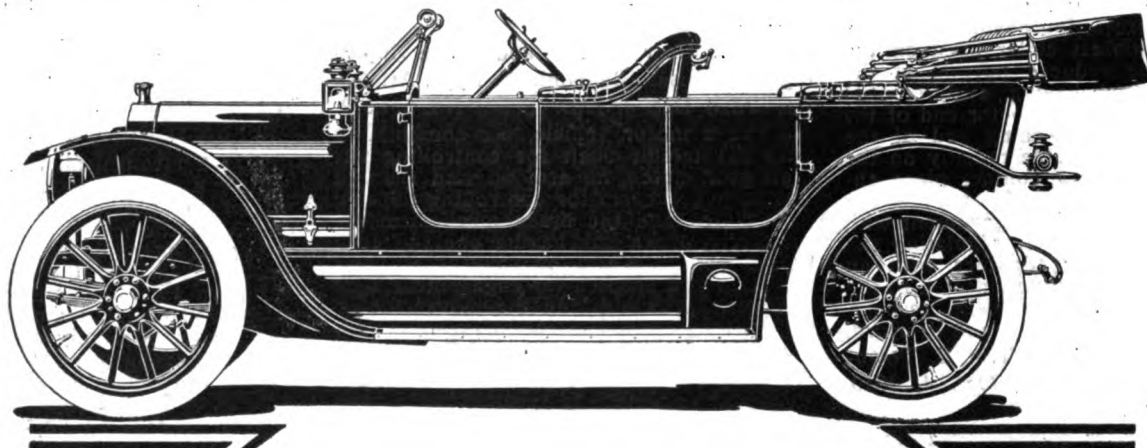
"The motor trucks which may be thus acquired are divided into two classes, (1) those capable of carrying a useful load of 3 tons (ton = 2,240 pounds) at 10 miles an hour, and (2) those capable of carrying a useful load of 30 hundredweight (hundredweight = 112 pounds) at 12 miles an hour. The wagons will be subsidized for two years, and the owners will receive an initial subsidy varying from \$39 to \$58 and an annual subsidy of \$73, payable half-yearly. A further \$48 will be paid if the wagons carry a second magneto."

Unique Wagon Coming from Columbus.

F. W. Dickinson, who several months since incorporated the Automotor Co., in Columbus, Ohio, with \$50,000 capital stock, has brought it into actual being by leasing a plant at 1181 Parsons avenue, in that city, and electing the following officers: F. W. Dickinson, president; William Caskey, vice-president; Frank Lodeman, treasurer; A. F. Dickinson, secretary. The company purposes manufacturing an extremely light delivery wagon which is wholly unlike any of those now in use. It really consists of a body suspended between two steel tube motorcycle frames and employs wire wheels and other motorcycle characteristics. It mounts a five horsepower motor and is rated at 1,000 pounds capacity.

Rambler

1912—Cross Country—\$1650



IT'S 38 horse-power, five-passenger, with 120-inch wheel base and 36 x 4-inch wheels and tires. *It's long, it's low, it's roomy.* Low, with drop frame—long, with front axle set forward and straight line torpedo body. Roomy, with 27 inches from front seat to dash and 30 inches from seat to seat in tonneau. No outside door latches. Enclosed ventilated front and hooded dash. A car of exceeding beauty, finished in English Purple Lake—it's a rare shade of deep maroon—trimmed in nickel. Radiator to conform to body lines, high and distinctive in appearance. Fenders with sweeping grace. Powerful brakes. To drive this car is exhilarating. It runs like a spirited horse. You touch the throttle and it's away. It's the Rambler Cross Country and the flag-bearer for 1912.

Equipment, Bosch magneto. Fine, large, black and nickel headlights with Prest-o-lite tank. Black and nickel side and tail oil lamps; large tool box; tool roll with complete tool outfit. Roomy, folding robe rail; foot rest, jack, pump and tire kit. Top, with envelope, \$80—wind shield \$35. Demountable Wheel, less tire, with brackets and tools, \$30. Eveready automatic engine starter \$175.

The Thomas B. Jeffery Company

Main Office and Factory, Kenosha, Wisconsin
Branches: Boston, Chicago, Cleveland, Milwaukee, New York, San Francisco

1912

Thirty-eight H. P. Models

Cross Country, 5 pass.	\$1650
Suburban, 4 pass.	1650
Roadster, 2 pass.	1600
Sedan, 4 pass. enclosed	2500
Gotham, 5 pass. cab side Limousine	2750

1912

Fifty H. P. Models

Country Club, 5 pass.	\$2250
Valkyrie, 4 pass.	2250
Moraine, 7 pass.	2500
Metropolitan, 7 pass. torpedo .	2850
Greyhound, 6 pass. torpedo .	2850
Knickerbocker, 7 pass. Berline type Limousine	4200



996,434. Engine. Charles H. Talley, Lincoln, Ill. Filed June 11, 1909. Serial No. 501,593.

In a gas engine, the combination with the crank shaft and casing, of a bearing sleeve bolted to the casing and having a portion of its outer end reduced in external diameter, the crank shaft bearing in said sleeve and projecting beyond the outer end thereof, a contact collar fixed on the inner end of the reduced portion of the sleeve, a fly wheel having a differential bore to fit on the reduced outer end of the sleeve and on the projecting end of the crank shaft, a rod movable radially on the fly wheel and having a contact piece engaging the collar, a spring for holding the contact piece normally in engagement with the collar, and a device for regulating the tension of the spring; together with an igniting device electrically connected to the contact collar and contact piece, respectively, substantially as shown and described.

996,435. Valve-Grinder. Elvin E. Townsend, Oakland, Cal. Filed Oct. 4, 1910. Serial No. 585,290.

1. A valve grinder comprising a frame, a sleeve journaled therein and provided with upper and lower cam grooves, means for oscillating said sleeve, a shaft longitudinally movable in said sleeve, a pin carried thereby for engaging the upper cam grooves, a collar on said shaft and provided with a lug for engaging the lower cam grooves, valve oscillating means carried by said shaft, and yieldable means opposing relative movement of said shaft and sleeve.

996,477. Rotary Engine. James Morris Foy, Palatka, Fla. Filed Mar. 12, 1910. Serial No. 548,764.

1. A rotary engine comprising a frame, a cylinder mounted to rotate upon said frame, a piston in said cylinder, said frame having means for reciprocating said piston, said cylinder having a controlling valve, a tripping device carried by said frame, for operating said valves, a governor mounted upon said frame, means whereby said cylinder actuates said governor, and a second tripping device carried by said frame, and independent of said first tripping device, said second tripping device serving to control said valve, said governor being operatively connected with said second tripping device and adapted to render the same operative and inoperative.

996,493. Vehicle Wheel. Robert B. Love, Antioch, Cal. Filed Sept. 3, 1910. Serial No. 580,329.

A rim, a tire carried thereby, a channel plate seated upon the rim, an adjusting screw passing through the rim and plate and terminating in a reduced end extension, semicircular bands seated in said plate and slidable therein, said bands being provided with slots that engage on the end extensions of said screws, springs interposed between said bands and the inner surface of the tire, and sleeves carried by one end of each band to slidably engage the end of the other band.

996,550. Roller Bearing. Oswald F. Zahn, Los Angeles, Cal., assignor to Zahn Self Righting Roller Bearing Company, Los

Angeles, Cal., a Corporation of Californint. Filed Oct. 7, 1907. Serial No. 396,279.

1. In a roller bearing comprising inner and outer bearing members, a set of bearing rollers at each end of the bearing, each set forming a circular series of rollers in close juxtaposition, each roller having a groove near that end which is most remote from the other set of rollers, abutment means at each end of the bearing on one bearing member engaging with the end of the rollers which are most remote from the other set of rollers, and an abutment means on the other bearing member extending into the recesses of the rollers and engaging with the walls in said recesses which are most remote from the other set of rollers.

996,572. Gear Shifting and Brake Applying Mechanism. Benjamin T. Epps, Athens, Ga. Filed Dec. 4, 1909. Serial No. 531,372.

1. In a motor vehicle, the combination with a rotatable shaft for controlling the high gear clutch, an arm on said shaft, a pair of pedal levers for controlling the low gear clutch and the brake mechanism respectively, and a link having one end connected with the arm on said shaft, and the other end adapted for engagement with said pedal levers during the movement of the latter in one direction, whereby the movement of one of said pedal levers in one direction will successively rotate said shaft to cause same to throw out the high gear clutch and then throw in the low gear clutch, and the movement of the other pedal lever in said direction will successively rotate said shaft to cause same to throw out the high gear clutch and then actuate the brake mechanism.

996,575. Wheel. John Berlin Frost, Jefferson, N. H., assignor, by mesne assignments, to Joseph H. Hardwick, Cleveland, Ohio. Filed June 24, 1908. Serial No. 440,197.

1. A vehicle wheel comprising a rim and a hub, said hub including an outer member to which the spokes are attached, and an inner member engaging the axle, said outer member having inwardly projecting spring supports, the face of the inner member having radial arms extending therefrom, a set of radially active springs interposed between the face of said inner member and the inwardly projecting spring supports of the outer member of the hub, a second set of radially active springs interposed between the outer ends of said radial arms, and the outer member of the hub, and circumferentially active springs located at a radial distance intermediate the set of radially active springs, said circumferentially active springs being substantially circumferentially aligned and each of said circumferentially active springs engaging at one end of the radial arms and at the other end engaging one of the inwardly projecting spring supports.

996,626. Internal Combustion Engine. William D. Edwards, Portland, Ore. Filed Apr. 2, 1910. Serial No. 553,006.

1. In an engine, a piston, means co-operating with the piston to form a combustion and expansion chamber adjacent to said piston and two compression chambers, means associated with the piston for compressing air in the first of said compression chambers upon the working stroke of the piston and for compressing air in the other compression chamber upon the return stroke of the piston, and means for placing both of said compression chambers in communication with said expansion chamber at the end of the working stroke

of the piston and for maintaining one of said compression chambers in communication with the said expansion chamber during the return stroke of the piston.

996,662. Lamp. Charles G. Myers, Cleveland, Ohio. Filed Apr. 22, 1910. Serial No. 556,932.

A lamp, comprising a casing closed at its rear and open at its front, a source of illumination, a hinged front provided with a projecting tube, a lens holder removably mounted at the rear of said projecting tube, a condensing lens carried by said holder, a lens tube mounted in said projecting tube, an objective-lens removably secured to the front end of said lens tube, and means for adjusting said lens tube in said projecting tube.

996,699. Automobile Heater. Leo A. Brigel, Cincinnati, Ohio. Filed Jan. 14, 1909. Serial No. 472,315.

1. In a mechanism of the character described, a motor, a main motor exhaust conduit adapted to permit a direct escape of the motor exhaust, a branch conduit leading from said main exhaust conduit adapted to direct the motor exhaust to heaters, a valve adapted to direct the motor exhaust to said main conduit or to said branch conduit wholly or in part, a plurality of heaters in position to impart heat to the car occupants, a valve in said branch conduit adapted to direct the motor exhaust wholly or in part to either heater, separate conduits leading from said last named valve to each of said heaters, and independent exit conduits to lead the motor exhaust from the respective heaters.

996,714. Automobile Agricultural Machine. David Henry Hatlee, Clifton Park, N. Y., assignor of one-fourth to Daniel P. McQueen, Saratoga Springs, N. Y. Filed May 16, 1910. Serial No. 561,634.

1. An automobile agricultural machine, comprising a main frame, a main or driving axle mounted in bearings therein and provided with a driving wheel, an engine or motor mounted on the main frame, a worm shaft driven thereby, connections between said worm shaft and the driving axle, an adjustable supporting wheel at the rear end of one side of the main frame, a pilot wheel at the front of the machine, a pivoted frame in which it is mounted, a shaft operatively connected with this frame, a hand wheel for operating the shaft, a frame arranged below the main frame and pivotally connected at its rear end therewith, means for raising and lowering this frame, a shoe to which the lower end of said frame is connected by which its lower end is supported and which is adapted to have connected with its parts an agricultural machine, and means carried by said frame and connected with the engine for operating the part attached to the shoe.

996,796. Protective Cover for Pneumatic Tubes. Fritz Rosdorff, Potsdam, Germany. Filed Dec. 3, 1910. Serial No. 595,472.

A protective envelope for the inner tube of vehicle tires comprising a sheet of fabric adapted to be wound around the tube, said sheet being of such a width that it will completely surround the enveloped tube a plurality of times, said sheet being provided with a plurality of rows of eyelets and a row of fastening cords, said rows being substantially parallel to one another, each row being spaced from the row next adjacent thereto a distance substantially equal to the circumference of the entire tube when enveloped.

MOTOR THE WORLD

Vol. XXIX.

New York, U. S. A., Thursday, November 9, 1911.

No. 8

SETTLING NEW YORK SHOW QUESTION

Addition to Grand Central Palace Will Afford All the Room Desired—Board of Trade Holds Lease.

So far as New York is concerned, there will be no so-called "show question" after the forthcoming exhibitions are out of the way. Madison Square Garden will be demolished in February next, but long before the automobile shows of 1913 are ready for the boards there will be upreared a building that will be big enough to house all the automobile exhibits which may be offered and the much-desired one-week-one-show will become not merely a possibility, but an extreme probability.

For be it known the new Grand Central Palace, which has but recently been completed, will be about doubled in size. The New York Central Railroad Co., which owns the Palace, has completed practically all of the preliminary arrangements necessary for the erection of a twin building—so far as the exterior is concerned—which will be directly connected with the present magnificent structure. It will occupy the site fronting on Lexington avenue from 47th to 48th street, adjoining the present Palace, which runs from 46th to 47th street. Unlike the latter, however, the exhibition hall of the new building will be devoid of columns and posts. It will more closely resemble the interior of Madison Square Garden in that it will have a huge arena overlooked by two balconies, thus providing a setting for a public show which at present only Madison Square Garden provides. It will afford 160,000 square feet of floor space, which, with the room afforded by the present Palace, will be sufficient for almost any automobile or other exhibition not of a sweepingly general nature.

Like the present structure, it will contain a number of offices and permanent show rooms, and will be operated by the Manufacturers and Merchants Exchange.

Of more direct concern to the automobile industry is the fact that for the purposes of automobile displays the present Palace and the addition that will be erected are under lease for a period of five years to the Automobile Board of Trade, which will have power to assign its lease if it so desires; in fact, so quietly did the Board of Trade go about it that only recently it leaked out that the National Association of Automobile Manufacturers' show which will occupy Grand Central Palace during January next will do so only by grace and assignment of the Board of Trade. The plans for the addition to the Palace are so well in hand that it can be authoritatively stated that the new building will be completed and ready for occupancy early next fall.

During the past week or so the New York papers have printed pretty pictures of another projected "show building," styled the Broadway Gardens, which it was stated might be erected on Broadway between 47th and 48th street, but it is extremely doubtful if the building ever will reach beyond the pretty picture stage.

Monnot Gets the Edison for Europe.

John F. Monnot, of Paris, France, who recently completed arrangements to handle Detroit electric cars and trucks in Europe, has also consummated the contract that was pending for the representation of the Edison Storage Battery Co. on the "other side." His territory includes all of Europe except Germany and Austria, which already are being taken care of by the Deutsche Edison Akkumulatoren Gesellschaft. Monnot has his plans so well in hand that already he has leased commodious quarters in London and Paris, where he will carry large stocks of both the Detroit vehicles and the Edison batteries, it being his intention to pursue a really aggressive campaign to popularize the electric vehicle abroad, where, strange to say, it has found but limited favor. Monnot is not only an American by birth, but for some time has done good work in introducing another American production, the Klaxon horn, of which he is the European distributor.

DID LOZIER AGREE TO SELL CONTROL?

Prospective Buyer and Broker Charge that He Did So Agree; He Denies It—Court Will Decide.

Whether or not, during the year 1909, Harry A. Lozier agreed to sell the controlling interest in the Lozier Motor Co., whose principal factory at that time was at Plattsburgh, N. Y., to Fletcher R. Williams, a resident of Hamilton County, Ohio, probably will be decided next week by Judge Seabury, sitting in Part I of the New York Supreme Court. That Lozier agreed so to do and then failed to carry out the agreement is the basis of a suit which Williams has filed in the New York court, claiming that Lozier's failure to consummate the transaction subjected him to a loss of \$500,000.

In another suit pending in the same court Joseph L. Rhinock, who acted as a broker in the matter, and who brought Lozier and Williams together, asks for \$150,000 for the service he performed, which sum he failed to secure because of the termination of the negotiations, through no fault on his part.

The case first came before Judge McCall on October 18th last, when that justice granted Lozier's demand that Williams be required to file a bill of particulars on or before November 6th. On November 6th it was adjourned until the 8th, when it was again put over until Monday next, 13th inst., at which time the points at issue probably will come to trial.

The institution of the two suits was the first general information that the Loziers had at any time contemplated the reorganization of the Lozier Motor Co. and relinquishing its control. That such a step was contemplated, however, Harry A. Lozier himself admits. In his answer to Williams's complaint he acknowledges that he entered into negotiations with the Ohio man, but states that they never reached a point approaching consummation.

In his bill of complaint Williams alleges that in March, 1909, he entered into negotiations with Lozier for the purpose of acquiring a majority or all of the stock or shares of the Lozier Motor Co. and that an agreement was reached whereby the company was to have been reorganized with \$3,000,000 capital, divided into \$1,000,000 first preferred, \$1,000,000 second preferred and \$1,000,000 common stock. Plaintiff was to have been allotted 3,000 shares of the first preferred stock at par, paying therefor \$300,000 and receiving a bonus of 3,000 shares of the common stock, while Harry A. Lozier and Edward R. Lozier were to have taken 2,000 shares of the first preferred stock, paying therefor \$200,000 and receiving 3,000 shares in common stock as a bonus.

Williams states that negotiations proceeded to the point where he tendered \$75,000 in cash to bind the bargain, but that Lozier then refused to proceed further or to reorganize the company and to let Williams purchase any shares. Instead, the complaint charges that Harry A. Lozier sold a majority or all of the stock in the company to citizens of Plattsburgh, at an average price of \$20 per share. Because of these alleged vacillating tactics Williams considers himself damaged to the extent of \$500,000.

In a voluminous answer to this complaint Harry A. Lozier denies that any binding agreement was entered into between himself and Williams. He admits that the latter came to Plattsburgh and spent several days in careful examination of the factory; that a large amount of correspondence passed between them regarding the proposed reorganization, but that he (Lozier) had not kept copies of all these letters; that Williams offered many suggestions as to the financing of the company, and that he was given an accurate statement of the company's affairs dated July 31, 1909. He, however, flatly denies that negotiations had been concluded or that Williams suffered any loss.

When, in response to Williams's complaint, Lozier asked that the plaintiff be required to file a bill of particulars, he requested, among other things, that the Ohio man be required to state when and where the \$75,000 was tendered and in what form; when and where the various compensations, negotiations and agreements referred to in the complaint took place, and when and wherein the plaintiff suffered damage to the extent of \$500,000.

Berlin and Paris Shows to Alternate.

The European show situation has taken an unexpected turn, a joint meeting of representatives of the French and German automobile manufacturers held last month having agreed to hold but one large "international" show each year on the continent of Europe, the show to alternate between Paris and Berlin. The 1912 show will be held in Paris, under the auspices of the

Chambre Syndicate des Constructeurs d'Automobiles, aided by the Automobile Club de France. This arrangement, of course, does not prevent the smaller countries from holding shows of their own whenever they please, the only parties to this agreement being France and Germany, on whom the burden of exhibiting in other countries chiefly falls.

New Company Gets the Lavinge Gear.

The Lavinge Mfg. Co., Detroit, has transferred the Lavinge steering gear to a new corporation, the Lavinge Gear Co., which has been organized for the purpose with \$100,000 capital stock, and which will maintain offices in Detroit and Milwaukee. In addition to the Detroit plant, it is stated that a larger plant which will produce the steering gear exclusively will be operated at Corliss, Wis., which is a suburb of Milwaukee. This new plant is 480x55 feet and has modern equipment that will permit of an annual output of from 35,000 to 50,000 complete steering gears. Joseph P. Lavinge, the inventor of the gear, will remain with the company as its chief engineer.

Huge Traffic Merger Formed in London.

According to press despatches, the London General Omnibus Co., the largest user of motor buses in the world, on November 1 was absorbed by a syndicate composed of the companies operating the electric, steam and underground railways of the English capital. The new corporation will have an absolute monopoly of motor traffic in the Metropolitan district. The capital of the companies involved in the merger amounts to \$165,000,000. The London General company operated 1,418 horse-drawn buses, all of which since May, 1905, have been replaced by motor-driven double-deckers, the last horse having been retired from service only last month.

Durant "Shapes Up" Two Companies.

The Little Motor Car Co., of Flint, Mich., which is W. C. Durant's newest enterprise, last week completed its organization by the election of these officers: Charles M. Begole, president; W. H. Little, vice-president; W. S. Ballinger, secretary and treasurer. The Little company, which is capitalized at \$1,200,000, has taken over the plant of the Flint Wagon Works, as was stated in last week's Motor World. Durant's other project, the Chevrolet Motor Co., of Detroit, also was incorporated last week with \$100,000 capital stock. Louis Chevrolet, William H. Little and Edwin R. Campbell figure as its incorporators.

Coates-Goshen Owes More Than \$38,000.

Schedules filed by the Coates-Goshen Mfg. Co., of Goshen, N. Y., which was thrown into bankruptcy several weeks ago, show liabilities of \$38,781, and actual assets of \$7,628, consisting of stock, \$1,800; machinery and fixtures, \$2,750; factory real estate, \$2,500; accounts, \$438, and cash,

\$140. Among the creditors are the National Bank of Orange County, \$5,800, secured; J. S. Coates, \$3,012, and Miller Cart Co., \$16,260, all of Goshen.

Whitesides Reorganized in Newcastle.

Following its removal from Franklin, Ind., to Newcastle, Ind., the Whitesides Commercial Car Co. has been reorganized with O. C. Saffell, of New Castle, as president. The other officers are F. N. Whitesides, of Franklin, vice-president; L. C. Boyd, of New Castle, secretary, and W. W. Prigg, of New Castle, treasurer and general manager. The company will build two trucks, one of 1,500 and the other of 2,000 pounds capacity.

Show Promoters Invade the South.

The South evidently is due to experience a great wave of "auto shows" this winter, George B. Bowling, F. B. Weeks and G. W. Buchanan, of Memphis, Tenn., having organized the American Auto Show Co., with that end in view. They already are said to have contracted to promote and manage a show in Houston, Tex., November 12-16, which, however, will be held in the name of the local club.

To Sell Mora Property at Auction.

The property of the defunct Mora Co., at Newark, Wayne County, N. Y., will be sold at auction on Tuesday and Wednesday next, 14th and 15th insts. The real estate comprises about five acres of ground and the other property includes a complete factory equipment, including machinery, patterns and jigs, a lot of parts and material and 50 finished automobiles.

Carter Seeking a Site in Pittsburg.

The Carter Motor Car Co., of Washington, D. C., makers of the Washington car, are seeking to obtain a site in Pittsburg, Pa. They are negotiating with the Pittsburg Industrial Commission and have let it be known that in addition to their present plant they have in view the establishment of a factory to supply the trade in the Middle West.

Changes Name and Adds Four Millions.

The Bishop & Babcock Co., of Cleveland, has filed notice of change of name to the Bishop-Babcock-Becker Co., and, concurrently, has increased its capital stock from \$4,500,000 to \$8,500,000. The company is a big one and is identified with the automobile industry because of its air compressors and tire pumps of various kinds.

Fisk Building Branch in San Francisco.

The Fisk Rubber Co. has placed contracts for the erection of a new building which will house its San Francisco branch. The structure will be a two-story and basement reinforced concrete building, and will be erected on the Fisk property at Van Ness avenue and Austin street at a cost of \$15,000.

NO LET-UP IN GROWTH OF EXPORTS

Canada Still Heaviest Buyer—Oceania Gains 300 Per Cent.—Totals Reach \$14,000,000 for Nine Months.

Exports of American-made automobiles continue to average away above the million-dollar mark, the figures for the month of September, 1911, being \$1,336,822, as compared with \$744,696 during the same month of last year. Of this amount \$1,121,544 represents the value of 1,159 complete cars, while \$215,278 worth of parts were exported, as against 502 complete cars valued at \$607,258 and parts valued at \$137,438 in the same month of 1910.

Despite a falling off in seven of the twelve divisions, the totals for the month are fully \$400,000 greater than they were at the same time of last year. The great losses in Asia (\$60,252), Mexico (\$33,239), and France (\$24,498) were far more than made up by the gains in the United Kingdom (\$206,912), South America (\$125,687) and British Oceania (\$127,927). The United Kingdom was the heaviest buyer, its quota reaching \$302,941, while Canada only took \$253,585 worth. British Oceania, with a purchase of \$199,654 in a single month, took third place. South America increased its purchases by over 800 per cent.

The figures for the nine months ending September, 1911, establish a new high record, no less than \$13,988,293 worth of cars and parts having been sent abroad during this time. Of this sum \$11,565,034 was represented by 11,244 complete cars, as against 6,472 cars valued at \$8,874,066 in the same period of the preceding year. The most significant increase is evidenced in British Oceania, where \$334,222 during the nine months' period of 1910 expanded into \$1,353,398 in 1911, a gain of 300 per cent. Canada, however, still is by far the biggest buyer of American cars, its purchases amounting to \$4,493,287; Great Britain, the next largest customer, took \$2,170,264 worth. The exports of parts during the nine months attained a value of \$2,423,259 as compared with \$1,545,933 in the same period of 1910. The report in detail:

	September—		—Nine months ending September—		
	1910	1911	1909	1910	1911
Automobiles and parts of—					
Automobiles	\$607,258	\$1,121,544	\$5,481,707	\$8,874,066	\$11,565,034
Parts of (except tires)	137,438	215,278	618,150	1,545,933	2,423,259
Exported to—					
United Kingdom	95,029	302,941	1,717,970	2,383,013	2,170,264
France	46,122	21,624	759,896	659,859	393,448
Germany	14,976	8,050	154,820	299,748	106,382
Italy	5,956	13,046	214,430	353,585	188,557
Other Europe	7,518	59,683	282,435	620,968	601,486
Canada	98,232	253,585	1,963,286	4,137,771	4,493,287
Mexico	67,933	34,694	317,471	499,527	311,427
West Indies and Bermuda	21,107	19,188	219,494	291,745	249,799
South America	15,296	140,983	147,466	301,947	867,292
British Oceania	71,727	199,654	162,111	334,222	1,353,398
Asia and other Oceania	105,071	44,819	79,783	386,032	611,805
Other countries	24,729	23,277	80,695	151,582	217,889
Total	\$744,696	\$1,336,822	\$6,099,857	\$10,419,999	\$13,988,293

"Rubberless Tires" at \$35,000,000.

In Atlantic City, N. J., where the waves and other things roll high, there are those who see almost uncountable millions in a so-called rubberless tire which has been invented by John Ingram, who is described as a former associate of Glenn Curtis, the aviator, the so-called rubberless tire being nothing more or less than one more adaptation of the 13,000 spring tires which have occupied the attention of the United States patent office. Despite the fact that none of the other 13,000 have reached far beyond the patent archives, it is stated that the Ingram Rubberless Tire Co. is to be organized and incorporated under the laws of New Jersey with a modest capitalization of \$35,000,000, and that "the promoters of the new company are preparing to enlarge their plant in Atlantic City and also to erect a factory at Egg Harbor City on a tract of 200 acres." However, inquiries addressed to P. E. Lathrop, of Atlantic City, whose name is mentioned in connection with the project, remain unanswered.

Imports Again Fell off in September.

Imports of foreign-made automobiles, which seemed to hold some slightly renewed promise to importers during August last, again dropped heavily during the month of September, 1911. While 86 cars valued at \$179,269 reached this country in September, 1910, this number fell to 62 cars, valued at \$137,253 in the same month of the present year. Parts to the value of \$10,042 were imported, as compared with \$34,175 worth in September of last year. For the nine months ending September, 1911, the figures show 670 complete cars valued at \$1,450,222, as against 809 cars valued at \$1,623,140 in 1910.

Tire Exports Near Two-Million Mark.

Tire exports continue to grow in importance. During the month of September, 1911, there were sent abroad \$226,451 worth of automobile tires, as compared with \$133,735 in the same month of the preceding year. During the nine months ending September, 1911, \$1,941,733 worth were sent abroad, but no comparison with last year is available, as the government did not list tires separately previously to July, 1910.

UNCLE SAM'S ORDER LONG WAY OFF

Size of Order, if Any, Depends on Year's Test of Two Wagons—Bidding May Be Open.

It will be some time before Uncle Sam places the order for those 1,200 motor-driven army escort wagons—probably more than twelve months hence, if, indeed, the order ever is placed. While there is no reason to doubt that the White Co., of Cleveland, possessed information or intimation justifying its statement of last week that the government had in view the purchase of 1,200 wagons of the sort, government officials who should have intimate knowledge on the subject discreetly dodge the question when it is put to them. They admit that the purchase of a number of army field wagons, as they style them, is contemplated, but they will not commit themselves to the statement that the order, if placed, will be for 12 wagons, much less 1,200. In other words, they will not deal with figures.

It transpires that the army wagon which the White Co. has built and delivered is one of two which the government ordered for test purposes. The other was produced by the Alden Sampson Mfg. Co., of Detroit, and both were constructed according to each manufacturer's stock specifications, slightly modified to meet the requirements of army service as nearly as they could be estimated.

In purchasing these two vehicles the army officials have in view tests which will determine whether the motor-driven vehicle can be depended on to operate not merely on the road, but off the road, under all conditions of country which now are negotiated by mules and wagons. Of the two machines selected one is chain-driven and the other shaft-driven, one of the fixed ideas being to determine by actual tests under service conditions which method of transmission is best suited for army purposes. These tests probably will occupy at least a year, and if they prove satisfactory detailed specifications for a wagon best suited for the service will be drawn up by government officials.

When Captain A. E. Williams, who is attached to the Quartermaster-General's office, was asked whether in the event that the tests prove satisfactory manufacturers of wagons other than the two which have been purchased by the government will be permitted to bid for the army order that is expected to result, he replied that in all probability all reliable truck builders will be given an opportunity to submit bids when the official specifications finally are drafted.

As to whether other wagons will be permitted to participate in the tests which are about to be undertaken, Captain Williams

did not desire to commit himself. In his opinion no additional machines will be purchased for the tests, but if other manufacturers desired to submit wagons he thinks it not unlikely that they will be allowed to participate.

Changes Among Prominent Tradesmen.

B. E. Snyder, chief accountant for the H. H. Franklin Mfg. Co., of Syracuse, N. Y., has been made comptroller of the company. He succeeds I. W. Reid, resigned.

W. J. Hoskins has been appointed production manager for the Oakland Motor Car Co., of Pontiac, Mich. Previously he was with the Cadillac Motor Car Co., of Detroit.

Hal Reifenberg, manager of the Warner Instrument Co.'s Kansas City branch, has been transferred to the management of the company's branch in Detroit. He succeeds A. S. Koto, resigned.

W. L. Penny has been appointed a district manager for the Ohio Motor Car Co., with headquarters in Peoria, Ill. Previously Penny was in the automobile business in Richmond, Va., for several years.

G. L. Wanes has been appointed director of agencies for the Haynes Auto Sales Co., of San Francisco, which controls the Haynes and Krit cars on the Pacific coast. Previously he was advertising manager for the company.

John C. Graham has been appointed assistant traffic manager for the Buick Motor Co., of Flint, Mich. He is an old railroad man who latterly has been serving as assistant transportation manager for the Detroit Board of Commerce.

Thomas J. Heller, formerly sales manager for the Standard Roller Bearing Co., has been appointed Eastern representative of the Warner Gear Co., of Muncie, Ind. He will make his headquarters at Glenwood avenue and Second street, Philadelphia.

J. R. Hall, for five years manager of the Eastern service department of the Lozier Motor Co. in New York City, has been transferred to Detroit, where he will fill a corresponding position in the Lozier factory. Hall has been identified with the Lozier interests for more than 20 years.

F. A. Rhodes, who previously was in the automobile business on his own account in New York, has been appointed general factory representative of the Alpena Motor Car Co., of Alpena, Mich., for the eastern half of the country. He will cover all of the Eastern and most of the Southern States.

Don C. McCord, who recently was chosen general manager of the Flanders Mfg. Co., of Pontiac, Mich., has been elected a director of the company. Clarence H. Booth, production manager of the Studebaker Corporation's E-M-F factory, also has become a director of the Flanders com-

pany. They succeed C. L. Palms and C. F. Splittdorf.

Frank L. Sessions has been appointed superintendent of the Standard Welding Co., of Cleveland, O., and F. H. Meyers, assistant superintendent. Sessions is a graduate of the Worcester Polytechnic Institute, 1899, and a member of the American Society of Mechanical Engineers and the American Institute of Electrical Engineers, and has had ripe experience in complicated manufacturing problems. Meyers has been connected with the Standard Welding Co. for many years.

Big Taxicab Company Admits Bankruptcy.

The big Cab & Taxi Co. of New York, of 254 West 40th street, has withdrawn its answer to the petition in bankruptcy filed against it on March 23 and consented to an adjudication.

The schedules filed show liabilities of \$3,073,964, of which \$2,500,000 are income bonds, \$95,170 first mortgage bonds, \$223,323 secured and \$223,134 unsecured claims, \$24,825 estimated liability on claims for damages aggregating \$218,050 and wages \$7,511 to about 900 employees. Nominal assets are \$583,429, consisting of 1,028 carriages and taxicabs, \$263,290; 305 horses, \$48,907; supplies, harness and uniforms, \$67,787; tools and machinery, \$11,625; accounts, \$122,698; shares of stock of the Moulton Stable Co. and Club Automobile Co., \$64,001; cash, \$2,828; insurance, \$2,356; notes, \$1,937, and claim on a contract, \$5,000.

Among the creditors and bondholders are the American Locomotive Co., \$94,282; Thomas Motor Car Co., \$19,429; Sultan Motor Car Co., \$14,658; West Side Bank, \$29,452; Bryant Park Bank, \$11,845; Colonial Bank, \$8,096; New York Livery & Auto Co., \$1,416,600; William H. Leach, \$128,000; Mary A. Moulton, \$60,000; H. W. Whipple, \$56,600, and the Standard Oil Co., \$18,927.

Big Plant for Champion Spark Plug.

The Champion Spark Plug Co., of Toledo, O., of which Robert A. and Frank D. Stranahan are the owners, has purchased a 1½-acre site in that city, at Upton and Avondale avenues, and has commenced the erection of a new plant which will have an annual capacity of from 1,500,000 to 2,000,000 spark plugs, with a reserve capacity of double that amount. The new building will be a modern brick and concrete structure, 102x72 feet.

Philadelphia to Repeat Double Bill.

Philadelphia again will be one of the few cities which will support a two weeks' show, the Philadelphia Automobile Trade Association having decided to repeat its usual "double bill" in January next, from the 13th to 27th, inclusive. As was the case last year, the First Regiment armory, uptown, and the Third Regiment armory, downtown, will be used for the purpose. During the first week both buildings will house gaso-

lene pleasure cars and accessories. During the second week the First Regiment armory will be devoted to electric vehicles and appurtenances, while the Third Regiment armory will be given over to commercial vehicles of all kinds.

More Room for Underslung American.

The American Motors Co., of Indianapolis, Ind., which set the fashion in underslung cars, has taken possession of its new buildings at Meridian street and the Belt Railroad, in that city, which will considerably relieve the congestion which has prevailed in the old plant. The new structure is a handsome brick and stone building, three stories and basement, the main building being 60x160 feet, with one wing 40x60 and another 30x145 feet. The additions also include four other buildings, varying from 100x150 feet to 70x75 feet.

One Show Follows Kansas City Peace.

Due to the fact that the rival trade associations in Kansas City have buried the hatchet and become one organization, that city will escape its usual infliction of two shows, as but one show will be held there during 1912, under the auspices of the Motor Car Trades Association. It will occur during the week of February 12th and will occupy Convention Hall, which is one of the largest buildings for exhibition purposes in the West.

Hyatt Branch Secures Larger Quarters.

The Detroit branch of the Hyatt Roller Bearing Co. has been removed from the Ford building to Woodward and Alexandrine avenues, where it occupies the entire second floor of the new building recently erected at that address. These quarters will afford the Hyatt sales and engineering departments much more elbow room and other facilities than they previously enjoyed.

Mercer Opens Branch in Philadelphia.

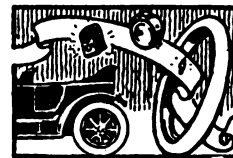
Having discontinued its agency arrangements in Philadelphia, the Mercer Automobile Co. has established a branch in that city at 620 North Broad street. It will be in charge of W. A. Smith, who previously was in the publishing business in New York.

Fisk to Open Four More Branches.

The Fisk Rubber Co. is preparing to establish branches in Brooklyn, N. Y.; Pittsburg, Pa.; Cincinnati, O., and Butte, Mont. When these places are opened the Fisk company will be operating 34 direct factory branches.

Providence Sets Date for Its Show.

The Rhode Island Licensed Automobile Dealers Association, Inc., has selected the dates January 22-27 for its show in the State Armory in Providence. It will be managed by Arthur S. Lee, manager of the association.



David Elg has broken ground for a new garage and repair shop at Twin Harbor, Mich.

A. C. Porter & Son is the style of a new firm which has opened a garage in Marshall, Minn. It is located on Main street.

W. N. Peck has opened salesrooms and a garage at 176 North Ionia street, Grand Rapids, Mich. He will handle the Packard line.

R. A. Amerman has broken ground for a three-story brick garage on Linden street, Scranton, Pa. It will cost \$24,000 when complete.

At a cost of \$35,000 Wilson & Beckwith have erected a garage at Tampa, Fla. It is located at the corner of Tampa and Madison streets.

Easley, S. C., soon will have its first garage. H. C. Hagood and C. W. Garrett are building it, with the intention of dealing in Maxwell cars.

W. G. Moore has opened a garage and repair shop in Grand Rapids, Mich. It is located in one of the Itasca Mercantile Co.'s buildings.

The Michigan Motor Car Co. has been formed in Saginaw, Mich., with headquarters at 222 North Franklin street. It will handle the Michigan car.

The Lozier Sales Co. has been formed in Washington, D. C., to distribute Lozier cars in the District of Columbia. It has located at 1315 H. street, N. W.

The old Francis Theatre, at Benton Harbor, Mich., has been turned into a garage and salesroom by George J. Haid. He will sell Warren-Detroit and Michigan cars.

The Grand Rapids Auto Supply Co. has been formed in the Michigan city of that name, with headquarters at 137 South Division street. E. W. Simpson is the owner.

L. V. Hanson and E. A. Levy have formed the Colonial Sales Co. in New York City, with headquarters in the Colonial building. They will distribute G. J. G. cars.

The Kingman Plow Co., dealer in agricultural implements in St. Louis, Mo., has taken on automobiles. It will handle the McIntyre car in Illinois, Missouri and Arkansas.

M. C. Willetts, who for some time has been operating a garage in Albion, Mich., has sold his interests to Richards & Noble, who conduct the Albion Garage at the same place.

The Commercial Car Sales & Service Co. has "opened up" at 918 Michigan avenue, Chicago, Ill., where it will handle

Autocars. Carl Holdredge is manager of the concern.

The Mack Bros. Motor Car Co., manufacturer of commercial motor vehicles, has opened a branch at 292 Central avenue, Albany, N. Y. W. R. Mason is the district manager.

W. R. Kneiss and L. H. Bovee have formed a partnership and opened salesrooms at 346 Golden Gate avenue, San Francisco, Cal. They will handle the Kelsey Motorette.

The West End Garage Co. has opened up at the corner of Fifteenth and Gordon streets, Allentown, Pa. William E. Bohlinger and Raymond Brey are the men behind the project.

A. E. Eddy, founder of the Eddy Electric Co., Hartford, Conn., has opened a garage and salesroom in the former livery stables of the Hotel Windsor. He will sell the Cartecar line.

Slootmaker Bros. is the style of a new concern which has "opened up" in Grand Rapids, Mich. It is located at Madison avenue and Crawford street, where Hudson cars will be shown.

Work has commenced on the new garage at 3431 Ludlow street, Philadelphia, Pa., which will be occupied by E. B. Price. It will be three stories high, of brick construction and will cost \$11,000.

George Sweat and J. G. Minter have purchased the interest of Louis Derango in the Beaumont Motor Car Co., in the Texas city of that name. They will continue the business under the same name.

First steps have been taken to dissolve the Alco Motor Sales Co., of Minneapolis, Minn., on the petition of R. J. Powell and H. W. Volk, stockholders. The court appointed Louis Andersch receiver.

The Hub City Garage, of Aberdeen, S. D., in the future will be conducted by George R. Summers, the partnership between Summers and R. Wheeler having been dissolved by mutual agreement.

A petition in voluntary bankruptcy has been filed by the Richard A. Crooker Co., 24-26 Columbus avenue, Boston, Mass. The liabilities of the concern are given as \$7,702.05, while its assets are \$3,788.18.

O. A. Repass, formerly of Des Moines, Ia., has opened a salesroom in Waterloo, the same State, where he will sell Ford cars. He will operate as the Repass Automobile Co., and is located at 706 Jefferson street.

The Fisher Motor Car Co., of Cincinnati, O., has opened a salesroom and service department at 804 Sycamore street.

Simultaneously with opening the larger quarters the company has inaugurated a motor truck renting service.

The Maxwell Sales Agency has been formed in Oakland, Cal., to take care of the distribution of Maxwell and Columbia cars in that territory. Its headquarters are at the corner of Twelfth and Madison streets, with A. C. Hull as manager.

David J. Fox and William T. Fox, of Birmingham, Ala., have formed a partnership under the style Fox Bros. and secured the distributing agency for Matheson cars. They will cover the States of Alabama and Mississippi and the eastern part of Tennessee.

Frank Staley, who for several years was with the Hearsey Vehicle Co., of Indianapolis, has returned to the automobile business in that city and opened salesrooms at 513 North Capital avenue. He will handle the R. C. H. car, as well as one of the higher-priced makes, which he has not yet decided on.

Francis J. Barfield has filed a petition in involuntary bankruptcy against the Birmingham Auto Co., of Birmingham, Ala., and asked for the appointment of a receiver. There are damage suits aggregating \$60,000 pending against the company, which offered no objection to the bankruptcy proceedings.

K. W. Brewer has taken over the interest of his partner, E. L. Baker, in the firm of Baker & Brewer, of Indianapolis, Indiana agents for Baker electrics, and will continue the business himself. Baker has joined the Hupp Corporation, of Detroit, where he will have charge of the sales of Hupp-Yeats electrics.

Albert J. Ditman, who for eight years was connected with the Studebaker sales department in New York, has acquired an interest in the Whiting Motor Co., 1802 Broadway, New York, and henceforth will play an active part in its affairs. The company handles the Cunningham and Mercer cars and the Sandusky truck.

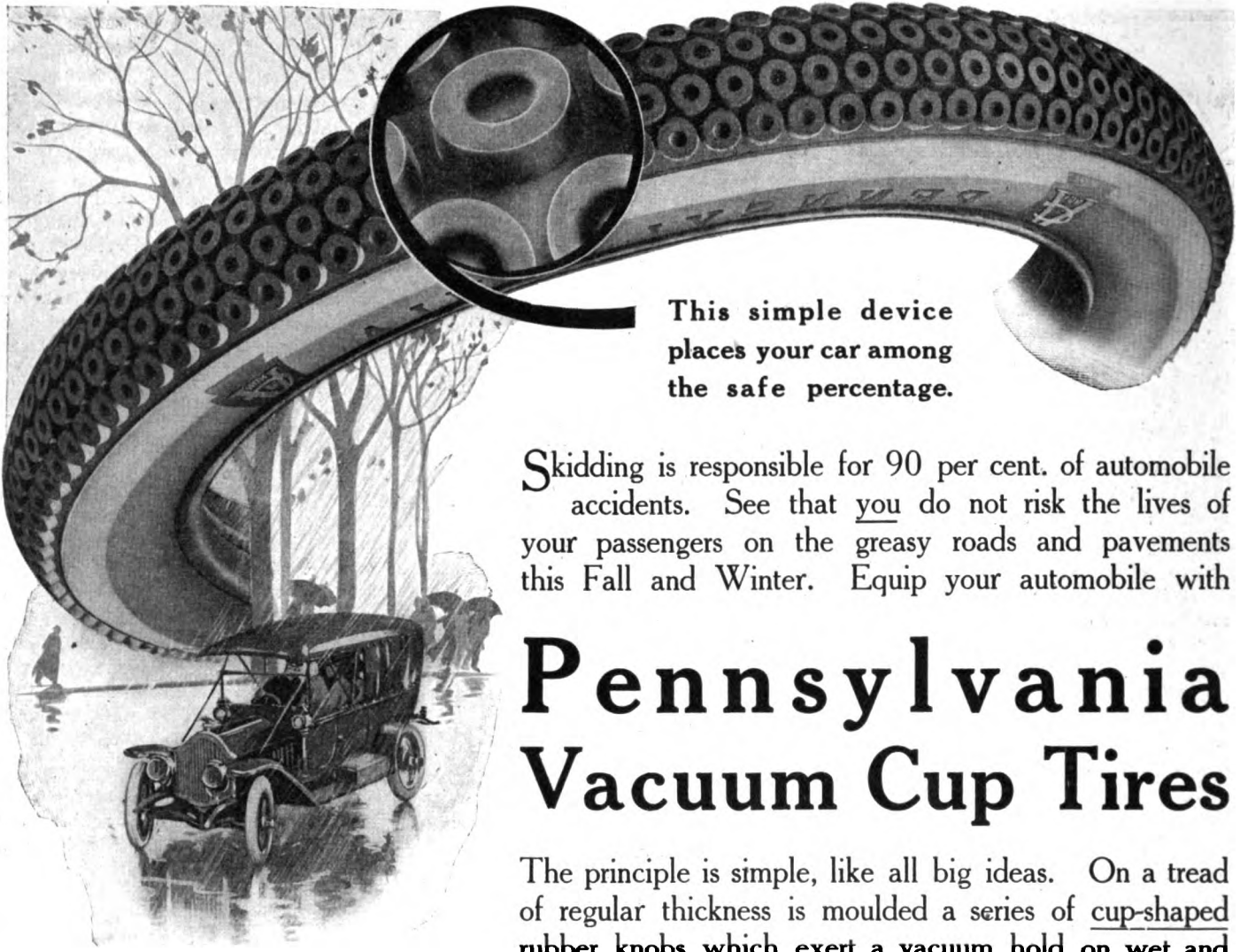
Recent Losses by Fire.

Fredonia, N. Y.—Fredonia garage, Day street, damaged and contents burned.

Independence, Ia.—H. J. Wilson's garage destroyed; all the cars saved. Loss on building, \$2,800.

Pittsburg, Pa.—Buhl Regal Repair Co.'s garage, 220 South St. Clair street, and two cars destroyed. Loss, \$6,500.

Detroit, Mich.—Phipps-Grinnell Automobile Co.'s plant at 16 Water street damaged. Loss heavy, estimated at over \$12,000.



This simple device
places your car among
the safe percentage.

Skidding is responsible for 90 per cent. of automobile accidents. See that you do not risk the lives of your passengers on the greasy roads and pavements this Fall and Winter. Equip your automobile with

Pennsylvania Vacuum Cup Tires

The principle is simple, like all big ideas. On a tread of regular thickness is moulded a series of cup-shaped rubber knobs which exert a vacuum hold on wet and greasy pavements. Slipping in any direction is im-

possible. The rolling of the wheel releases each cup automatically by raising one side first, so that forward speed is not retarded.

In snow and mud the knobs sink in and provide a better hold and better "traction" than any other form of non-skid.

Longer Service is a strong feature of Pennsylvania Vacuum Cup Tires. Even when the rubber knobs wear down, the tire is still as good for service as a smooth tread tire of regular thickness.

You combine the essential qualities of Safety and Economy by using these non-skid and long wearing tires.

SOLD BY THE BEST DEALERS EVERYWHERE

PENNSYLVANIA RUBBER CO., Jeannette, Pa.

(Reorganized February 1st, 1910)

BRANCHES:

Pittsburgh, 505 Liberty Ave.
Chicago, 1004 Michigan Ave.

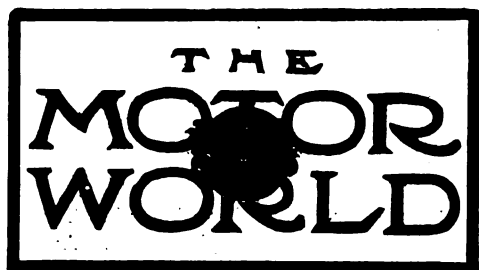
Detroit, 247 Jefferson Ave.
Minneapolis, 917 First Ave. S.

Pennsylvania Rubber Co. of New York
New York City, 1700 Broadway

Pennsylvania Rubber Co. of California
San Francisco, 512-14 Mission St. Los Angeles, 930 So. Main St.



Trade Mark



PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

A. B. SWETLAND.....President
F. V. CLARK.....Secretary-Treasurer
R. G. BETTS.....Managing Editor
154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) 10 Cents
Foreign and Canadian Subscriptions . . . \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceeding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, NOVEMBER 9, 1911.

Why Not Mark the Firing Point?

Despite the accuracy which is obtainable with modern methods and machinery, it is a well-known fact that no two cars which are turned out from the same factory, of the same materials and supposedly under identical conditions are exactly alike. They differ slightly and require to be adjusted, for which purpose a corps of trained mechanics is retained.

In the road test each car is required to attain a certain maximum speed before being turned over to be finished. It is the duty of the tester to obtain this speed or to say why it is not possible. To him falls the work of ascertaining the best possible position for the spark and throttle control levers for maximum power and efficiency. When he has found that particular position and the car performs to his satisfaction it is returned to the finishing shops and the tester is the only one who knows that if the spark is advanced one-sixteenth of an inch

or retarded as much the efficiency of the motor is increased or decreased accordingly.

After all the careful testing that has been carried on to discover the proper position of the spark advance lever for the greatest efficiency—the point at which the motor will deliver the greatest power—the car is shipped to the distributing agent with an instruction book that says "the best position for the spark advance lever for ordinary running is about the center of the quadrant," if, indeed, the book says anything at all about the subject.

As a matter of fact, it may not be "about the center of the quadrant" for that particular car, though the purchaser has no way of finding that out—at least, he has not the certain way that is at the command of the manufacturer. There is just one spot on the quadrant over which the lever should be placed for the greatest efficiency, and there is just one man who knows that spot—the tester. Also there is just one simple way of insuring that the salesman, or the demonstrator, or the purchaser may know that spot—let it be marked before the car leaves the factory, or rather before the car leaves the tester's hands. Apparently it is a trifling matter, but it is one of the many "trifles" that count.

Economics of Motor Haulage.

There is no better proof of the overpowering triumph that lies in store for the commercial vehicle of the future than the circumstance that men of strong inductive faculty and trained intelligence are studying its present operation with an eye to increasing its serviceability. Motor truck mechanism still is subject to improvement; its evolution is certain to continue, and with marked advantage. But where would be the incentive to betterment did the user fail to appreciate its shortcomings as well as its advantages? From this time on more will depend on the discriminating application of power vehicles than on the further development of their properties. Marketing problems now demand equal consideration with those of manufacture.

Furthermore, the investigation of operating problems now reveals as fertile possibilities and as many unexpected discoveries, encouraging and otherwise, as did the pursuit of pure invention a few years ago. The whole field of economics as applied to motor haulage demands critical attention and seldom fails to yield logical, if un-

expected, results. The coal merchant who resolved the balance in favor of adopting a certain style of truck into a question of the helper's wages is of a type utterly different from the customer of old. The old-time automobile salesman—and perhaps the old-time automobile manufacturer, too—would be at a loss in knowing how to deal with him; he subjects his transportation costs to the same sort of scrutiny that his purchases, his market, his other routine operations received. He himself is a new problem for the industry to solve. Incidentally, the outcome of the investigation referred to, as related in another column, is both diverting and startling—startling because it emphasizes the absolute necessity of facing the labor problem anew at every step in the world's progress.

An equally instructive illustration of the profitable outcome of close truck cost analysis is the experience of another large user of automobiles who has found his best economy in certain work with a very low-priced form of gasoline delivery wagon. In the face of the common belief in the electric car for short hauls, particularly under traffic restrictions, this is a most radical conclusion. Yet the logic of deduction is unimpeachable. Close city traffic imposes the necessity of slow average speeds. In the mind of the average man slow averages are compatible only with slow maximum speeds. But the investigator in question has discovered that the light gasoline car which he employs has a considerable advantage over the otherwise satisfactory electric due to its superior powers of acceleration.

Under certain special conditions which govern a portion of his haulage—and which might apply in no other case—the small, light vehicle is enabled to make frequent bursts of relatively high speed which enable it to work at lower cost, even though required to make three trips to one of a competing type in order to transport the same bulk of material. True, this is destructive operation; the light vehicles probably will prove short lived, but the operator has taken that into account in reckoning the cost. Even with a shorter life he can see how the little car will save money over the larger one, and the fact that he is so convinced after much study proves that he is a wise user—one of the type that is destined to assist the motor truck movement more than all the arts of manufacture and sale.



Chicago, Ill.—Ajax-Grieb Rubber Co., under New Jersey laws, with \$1,000,000 capital; to deal in rubber goods.

Detroit, Mich.—Mechanics Motor Car Co., under Michigan laws, with \$10,000 capital; to deal in automobiles and motor vehicles.

Seattle, Wash.—Stearns Auto Co., under Washington laws, with \$7,500 capital; to deal in automobiles and motor vehicles. Corporators—A. C. Stevens, F. A. Mitchell.

Hagerstown, Md.—The Antietam Garage Co., under Maryland laws, with \$5,000 capital; to deal in automobiles and maintain a garage. Corporators—Dr. I. M. Wertz, Ira R. Smith, Ernest Shockey.

Buffalo, N. Y.—Frontier Tire & Rubber Co., under New York laws, with \$250,000 capital; to manufacture pneumatic tires and rubber goods. Corporators—G. B. North, H. M. Gill, F. D. L. Stowe.

Chicago, Ill.—Motor Service Corporation, under Illinois laws, with \$10,000 capital; to operate an automobile express and delivery service. Corporators—R. O. Ehmgig, F. R. Buri, Frank P. Page.

Augusta, Maine.—Lakeaero Co., under Maine laws, with \$1,000,000 capital; to engage in automobile, airship, motor boat and other enterprises. Corporators—E. J. Pike, L. J. Coleman, Charles L. Andrews.

New York City, N. Y.—International Motor Co., under Delaware laws, with \$10,000,000 capital; to manufacture motor vehicles. Corporators—R. A. Aldrich, G. Foster, J. A. Bennett, all of New York City.

Boston, Mass.—Vera Motor Car Co., under Massachusetts laws, with \$60,000 capital; to deal in automobiles and motor vehicles. Corporators—G. M. Polian, Wakefield, Mass.; M. A. Sweeney, Cambridge, Mass.

New York City, N. Y.—Auto Sectional Leather Tire Co., under New York laws, with \$50,000 capital; to manufacture vehicle tires, rubber and leather goods. Corporators—H. L. Biener, I. Scherer, M. Scherer.

Indianapolis, Ind.—Indiana Motorcar Co., under Indiana laws, with \$10,000 capital; to deal in automobiles and motor vehicles. Corporators—W. C. Teasdale, W. K. Bromley, G. C. Simons, C. U. Nankival, L. E. Wilson.

Newcastle, Ind.—Whitesides Commercial Car Co., under Indiana laws, with \$31,500 capital; to manufacture commercial vehicles. Corporators—O. C. Saffell, F. M. Whitesides, L. C. Boyd, W. G. Hillock, T. B. Millikin.

New York City, N. Y.—G. & S. Accessory Co., under New York laws, with \$100,000 capital; to manufacture and deal in motor vehicle supplies. Corporators—W. Fischman, L. E. Z. Aaronson, G. Tumpson, all of New York City.

Chestertown, Md.—Chestertown Automobile and Garage Co., under Delaware laws, with \$25,000 capital; to deal in automobiles and maintain a garage. Corporators—H. B. Simmons, A. P. Rasin, L. B. Russell, all of Chestertown.

Dayton, Ohio.—Dayton and Troy Automobile Co., under Ohio laws, with \$10,000 capital; to deal in and operate automobiles and motor vehicles. Corporators—C. E. Emerick, S. S. Faulkner, S. B. Faulkner, W. J. Sherer, D. B. Sherer.

Memphis, Tenn.—Stewart Automobile Co., under Tennessee laws, with \$8,000 capital; to deal in automobiles, motor vehicles and accessories. Corporators—R. G. Stewart, E. F. Perry, L. Le May, Mrs. E. Stewart, Miss Nellie Blankership.

Fremont, Ohio.—Northern Ohio Punctureless Tire Co., under Ohio laws, with \$3,000 capital; to manufacture and deal in automobile and other tires. Corporators—Frank E. Wieset, Louis Wieset, John J. Wieset, L. P. Wieset, C. W. Bowler.

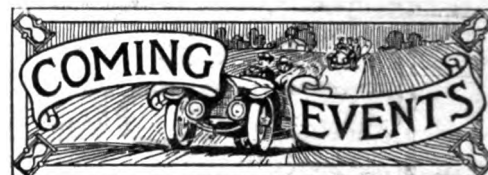
Bloomfield, N. J.—Torbensen Gear & Axle Co., under New Jersey laws, with \$300,000 capital; to manufacture gears, axles and other automobile parts. Corporators—J. O. Eaton, H. O. Tube, Montclair, N. J.; V. V. Torbensen, Bloomfield, N. J.

Wilmington, Del.—The Coleman Dupont Road, Inc., under Delaware laws, with \$200,000 capital; to construct automobile roads. Corporators—J. C. Dupont, L. L. Dunham, P. E. Wilson, all of Wilmington, Del.; F. M. Williams, Goshen, N. Y.; S. H. Henry, Cambridge, Md.

Cincinnati, Ohio.—Spring Hub Automobile Wheel Co., under Ohio laws, with \$10,000 capital; to manufacture automobile wheels. Corporators—James G. Blackburn, John H. Kruse, Henry H. Weild, James E. Earle, Henry W. Plump, Robert Freisens, Edward M. Wollen.

Wilmington, Del.—The Eastman Motor Truck Co., under Delaware laws, with \$25,000 capital; to deal in and operate motor vehicles. Corporators—J. H. Schields, Minneapolis, Minn.; C. E. Semmes, Washington, D. C.; B. R. Kenworthy, Philadelphia, Pa.; H. G. Eastburn, Wilmington, Del.; L. J. Eastman, Philadelphia, Pa.

Terre Haute, Ind.—Terre Haute Automobile Association, under Indiana laws. No capital. Fraternal. Corporators—S. F. Lane, Charles Patton, H. H. Dronberger, M. A. Steele, F. F. Blankerbaker, J. F. Lynch, H. E. Bindley, J. G. Elder, C. B. Goroy, G. R. Daniels, J. R. Yung, E. R. Baldrige, Carl Bauermeister, T. O. Beggs, C. J. Root.



November 9-12, San Antonio, Texas—Racemeet under auspices San Antonio Automobile Club.

November 13, Harrisburg, Pa.—Economy tests under auspices Motor Club of Harrisburg.

November 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

November 30, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

November 30, Los Angeles, Cal.—Race-meet at Los Angeles Motordrome.

December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

January 2-10, New York City, N. Y.—Importers' salon at Hotel Astor.

January 6-13, New York City—Automobile Board of Trade's 12th annual show in Madison Square Garden. Pleasure vehicles only.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual national show in New Grand Central palace. Pleasure and commercial vehicles.

January 13-27, Philadelphia, Pa.—Philadelphia Automobile Trade Association's annual show in First and Third Regiment Armories.

January 15-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden. Commercial vehicles only.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

January 22-27, Providence, R. I.—Rhode Island Licensed Automobile Dealers' Association's show in the State Armory.

January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association's annual show at Wayne Garden.

January 27-February 3, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in the Coliseum and 7th Regiment Armory. Pleasure vehicles only.

February 5-10, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in the Coliseum and 7th Regiment Armory. Commercial vehicles only.

February 17-24, Newark, N. J.—New Jersey Automobile Exhibition Co.'s annual show in First Regiment Armory.

March 2-9, Boston, Mass.—Boston Automobile Dealers' Association's annual show in Mechanics' Hall. Pleasure vehicles only.

CHICAGO RUN PROVED STRENUOUS

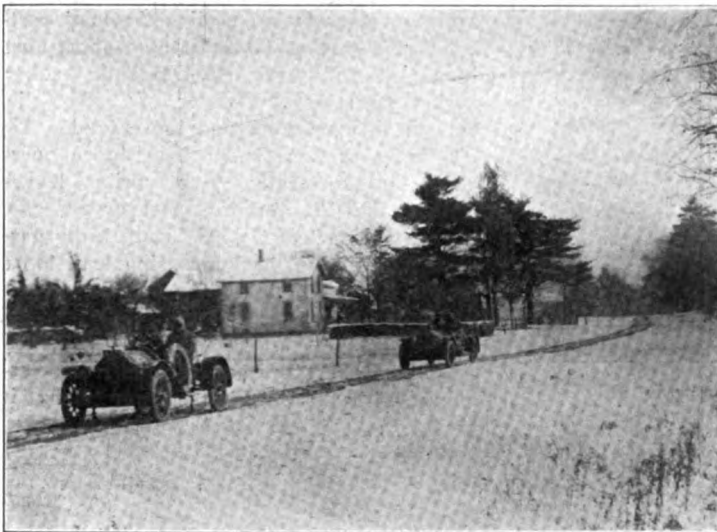
**Mud, Snow and Ice-Laden Winds Marked
Closing Days—Fifteen Survivors—
Awards Well Distributed.**

The 17 motorists who so bravely started from Chicago on the 27th ult. in the Chicago Motor Club's 1,400 miles reliability run did not have such an easy time after they left Columbus on Tuesday, 31st ult. Eleven of the 17 reached that Ohio city with perfect scores, as told in The Motor World last week, but in the subsequent three days' run all but nine of them suffered penalization, and on the technical

Chicago Motor Club's team trophy; Salisbury and E. T. Knudson, who drove a Staver-Chicago, tied for the club trophy in the touring car division; J. A. Wicke, also a Moline pilot, won the trophy in the run-about division, and by a curious coincidence H. E. Halbert (Grout), who rolled up the greatest penalty to be meted out—499 points in all—won the Standard Oil trophy for economy in the consumption of gasoline.

Halbert's Grout covered the 1,355.7 miles on just 77 gallons of fuel. His percentage, according to the Chicago Motor Club's formula, in which the weight of the car fully loaded is divided by the number of ounces of gasoline consumed (128 ounces to the gallon), was .406, and as this was

of mud, Jack Frost took a personal interest in the tour and added to the hardships of the motorists. Owing to rain on the previous day, the roads were in bad shape and in some places the mud was hub deep. It was between Columbus and Toledo that the worst going was experienced. Toledo was the noon control, and when members of the Toledo Automobile Club announced that the roads on the route originally laid out were practically impassable Referee Beecroft acted on the suggestion of local motorists and mapped out a detour by way of Ypsilanti. But even then conditions were little better, and the time schedule had to be cut from 18 and 20 miles an hour for the two divisions to 13½ and 15 miles, respectively.



SNOW AND FROZEN RUTS ENCOUNTERED IN MICHIGAN BY THE CONTENDERS

examination that followed seven more clean slates went by the board, leaving F. G. Salisbury (Moline) and E. T. Knudson (Staver-Chicago) as the sole survivors with unblemished records. Two of the contestants, A. M. Robbins (Abbott-Detroit) and Paul Strauss (National), withdrew their cars before the completion of the run.

To F. G. Salisbury and C. H. Vandervoort, who both drove Molines, goes the

the highest to be recorded he was adjudged the winner. Salisbury and his Moline required only one-half gallon more, but as the car was 250 pounds lighter than the Grout the percentage dropped accordingly to .378. E. T. Knudson (Staver-Chicago) was third with a consumption of 82 gallons and a percentage of .371.

On the run from Columbus, O., to Detroit, 211 miles through the slimiest kind

But one bright ray of sunshine pierced the deepening gloom. None of the cars not previously debited forfeited its perfect score. Two of the contestants, C. R. Winters (Oldsmobile) and Gus Monckmeier (Staver-Chicago) got into difficulties, however, that added two points and five points, respectively, to their losses. When Winter's Oldsmobile collided with a wagon on the previous day and lost a few of its

Summary of the Results of the Chicago Motor Club's Reliability and Economy Contest

Touring Car Division						
No.	Car and Driver	Penalization				
		Road	Brakes	Clutch	Tech.	Total
2	Moline, F. G. Salisbury.....	0	0	0	0	0
10	Staver-Chi., E. T. Knudson..	0	0	0	0	0
1	Moline, C. H. Van Dervoort..	0	0	0	4	4
5	Halladay, Geo. H. Daubner...	0	5	0	16	21
3	Case, J. Hansen	4	0	0	22	26
9	Staver-Chi., G. Monckmeier..	12	18	0	5	35
6	Halladay, W. M. David.....	14	47	0	8	69
7	Oldsmobile, C. R. Winters...	463	0	0	26	489
4	Abbott-Detroit, A. M. Robbins	Withdrawn				
Runabout Division						
100	Moline, J. A. Wicke.....	0	0	0	4	4
102	Oakland, H. A. Bauer.....	0	0	0	7	7
105	Bergdoll, A. Monson.....	0	0	0	7	7
103	Velie, A. H. Gibbons.....	0	3	0	17	20
104	Velie, J. Stickney.....	1	11	0	41	53
101	Moline, W. J. Boone.....	0	0	0	54	54
107	Grout, H. E. Halbert.....	473	13	5	8	499
106	National, Paul Strauss.....	Withdrawn				

Gasolene Consumption—Chicago Motor Club Formula			
No.	Car and Driver	Gallons of Gasolene	Weight of Car Percent-age
107	Grout, H. E. Halbert.....	77	4010 406
2	Moline, F. G. Salisbury.....	77½	3760 378
10	Staver-Chicago, E. T. Knudso	82	3900 371
101	Moline, W. J. Boone.....	81¼	3830 368
9	Staver-Chicago, G. Monckmeier	81½	3790 363
105	Bergdoll, A. Monson.....	74¼	3450 363
1	Moline, C. H. Van Dervoort..	82	3750 357
100	Moline, J. A. Wicke.....	84¼	3670 340
6	Halladay, W. M. David.....	102	4260 326
5	Halladay, Geo. H. Daubner...	105	4280 311
3	Case, J. Hanson.....	103½	4090 308
102	Oakland, H. A. Bauer.....	94¼	3340 276
103	Velie, A. H. Gibbons.....	113½	3620 250
7	Oldsmobile, C. R. Winters....	210½	6030 223
104	Velie, J. Stickney.....	137	3490 199

fenders the remaining ones were thought to have been firmly fastened, but they were not. As a result, the Oldsmobile was driven into control lacking another fender and consequently was penalized. Meanwhile Monckmeier had been having trouble with his transmission case. The car had been running finely through the deep sand and mud, but latterly showed signs of bearing trouble. It was deemed necessary to make

alike were benumbed by the intense cold. For a while the mud disappeared and instead the motorists bucked sand and more sand until some of the drivers managed to get warmed up wrenching their steering wheels from one side to the other and back again.

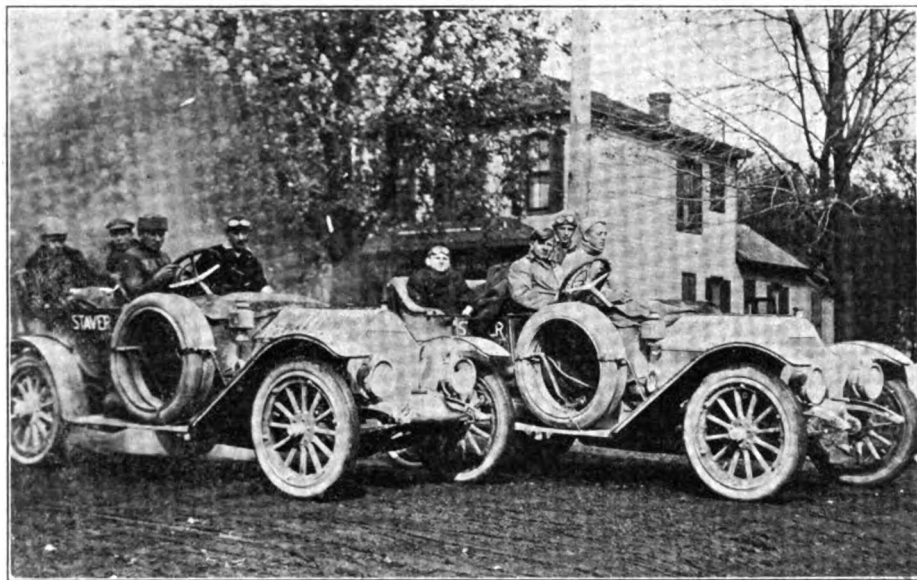
Outside of South Bend the procession caught up with the tail end of a snow-storm, and before long had reached its

Detroit was withdrawn near Niles, Mich. Halbert's Grout received 30 more points for lateness at control, and Winter's Oldsmobile had six more points added to its score for work done on the old offending fender.

The cars that were penalized on the technical examination, the reasons therefor and the penalties were as follows: 1-Moline, radiator support boss loose, 4; 3-Case, lost grease cup, 2, broken spring leaf, 5, loose tie rod yoke, 15, total 22; 5-Halladay, loose steering connection, 15, loose torsion rod end, 1, total 16; 6-Halladay, broken fender iron, 6, lost fender bolt, 2, total 8; 7-Oldsmobile, broken muffler, 5, broken fenders and running board, 11, lost fender and two broken bolts, 20, total 36; 9-Staver-Chicago, broken spring leaf, 35; 100-Moline, leaky radiator pipe, 4; 101-Moline, broken starting crank bracket, 50, radiator support boss loose, 4, total 54; 102-Oakland, broken spring and loose fender, 7; 103-Velie, broken spring leaves and loose fender, 17; 104-Velie, broken fender iron, loose operating brake service, two spring leaves broken, 53; 105-Bergdoll, lost grease cup, broken spring leaf, 7; 107-Grout, leaky gasoline connection, broken spring leaf, loose fender, 8.

Building an American Racer for Burman.

When Robert Burman returns from Germany with his 300-horsepower Benz it

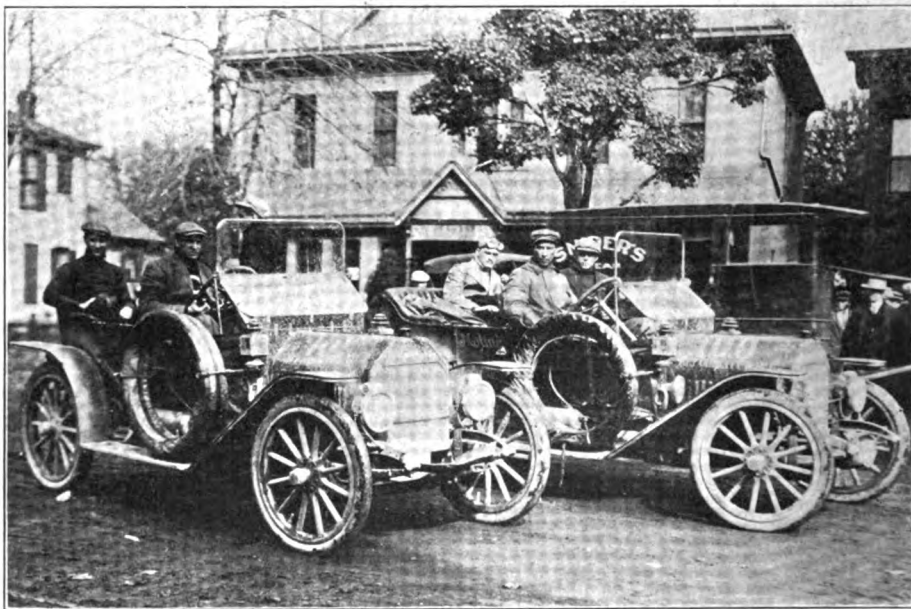


THE STAVIER PILOTS, E. T. KNUDSON AND GUS MONCKMEIER

adjustments, and five points were charged for the privilege. Paul Strauss stayed out all night in his National and withdrew in the morning.

From Detroit to Grand Rapids, over the route traveled by the tourists, it is only 150 miles, the shortest day's run of them all. But the roads still were far from perfect and despite the short run several drivers were compelled to see additional figures marked down on their score cards. After what was considered to be a remarkable showing A. M. Robbin's Abbott-Detroit picked up a "jinx" and could not throw it off. Up to that time the car had retained a perfect score, but the "jinx" manifested itself just out of Detroit and a broken spring brought 45 black marks. Repairing the gasoline line cost 25 more and an additional 48 were charged for lateness at control. John Hansen, driver of No. 3 Case, in attempting to dodge a woman who walked in front of the machine, stalled his motor and saw four points debited as a result. H. E. Halbert's Grout had 53 points more added to its score when its clutch became deranged; 50 of them were for time lost and the other three for the actual work of adjustment.

Prognostications to the effect that the last day's run of 218 miles into Chicago by way of South Bend and Kalamazoo would be the worst of the lot were very nearly correct. South Bend was the noon control, but long before that interesting Indiana city was reached drivers and passengers



C. H. VANDERVOORT AND F. G. SALISBURY—VICTORIOUS MOLINE DRIVERS

middle and were bucking snow drifts instead of sand. After Kalamazoo had been passed the pilots had a real battle with the snow drifts to keep from skidding off the roads; at Dowagiac the snow was 18 inches deep.

But though the conditions were hard only three penalizations resulted, and in no case was a perfect score blemished. After a series of mishaps that culminated in a broken frame, A. M. Bobbins's Abbott-

transpires that he will not devote all of his time and skill to the exploitation of its lightning speed, for, according to advices from the Ohio Motor Car Co., of Cincinnati, that company has nearly completed an Ohio racer designed specially for Burman's use. It is of a special type and will permit the Ohio car to enter events above the 300 cubic inch class, and it is stated that Burman will put it to the speed test on the Daytona (Fla.) beach.

27 PERFECT IN NEWARK'S NON-STOP

Two Others, Penalized for Unusual Causes,
Enter Protests—Trucks Try to Follow
Touring Car Schedule.

Twenty-seven perfect scores and two protests marked the finish of the non-stop endurance contest promoted by the Newark (N. J.) Star and conducted by the Newark Motor Club on the 3d inst., and which included both pleasure cars and commercial vehicles. It was a one-day affair, the course following a circuitous route extending into northern New Jersey and including a steep climb over the winding road up Schooley's

kept "on the go" to preserve their perfect scores.

M. F. O'Neill, owner and driver of a Paterson car, was one of those who entered a protest after the completion of the run. O'Neill got within sight of the checking-out point eight minutes ahead of schedule and loafed in; it cost him eight points and his perfect score. He protested on the ground that he had not actually crossed the finish line ahead of time. The other protest originated with J. M. Gray, who piloted a Schacht. He claimed that someone other than himself or his passengers pulled out his battery plug while in front of the gasoline supply station at Hackettstown and caused his motor to stop. The stoppage of the motor resulted in a penalization

man Valley water-bar too forcibly and another in the mud at Devil's Hole. When he checked in he ventured the opinion that no motor truck could cover the course in the time prescribed, which, it may be added, no truck in practical service ever will be called on to do. All the truck drivers were non-contestants.

Of the 27 who finished with perfect scores nearly all were local tradesmen; very few private owners participated. Following is the list of contestants who finished without penalization: J. D. Nichol, Jackson; Clifford B. Wyckoff, Ford; Guy M. Reynolds, Pennsylvania; E. G. B. Riley, Correja; C. R. Schuyler, Haynes; George F. Eveland, Stevens-Duryea; Walter Davenport, Buick; Clarence E. Fisher, Cadillac; Ray Magruder,



WHERE THE GOING WAS GOOD AND THE SCENERY PICTURESQUE ON NEWARK'S NON-STOP RUN

mountain. Seven hours were allowed for the trip of 146 miles, and to obtain perfect scores the contestants were required to check in on time—not ahead of schedule nor behind it—and to keep their motors running the whole time except when at an arbitrary gasoline supply station at Hackettstown.

Mayor Jacob Haussling was the dignitary in charge of the start, and promptly at seven o'clock in the morning he gave the sign to George F. Eveland, who headed the procession and who was officially designated as the pathfinder. The other 37 cars, including four loaded trucks, followed at one-minute intervals. The roads were found to be in excellent condition except near Newton, where a bridge was being repaired and a detour had to be made. At this point a man was stationed who not only instructed the motorists as to the proper course, but handed out sandwiches and other refreshments, for no stop was scheduled for lunch and the cars had to be

which he hopes to have removed and his score card wiped clean.

Though the route as originally laid out covered 127 miles, W. J. McAvoy in the Packard pilot car found it necessary to increase this distance by 19 miles because of two bridges which were undergoing repairs, and the confetti was strewn accordingly. As a further guide to the following procession flagmen were stationed at sharp corners to prevent accidents and set stragglers on their way.

One of the non-contestants got into really serious difficulty. A Johnson three-ton truck loaded with 3,200 pounds of coal and driven by V. Richardson slid off the road just out of Petersburg, and it took the crew of four men close to five hours to extricate it. It covered the remainder of the course without further mishap, though it was late into control, of course. J. H. Robertson, who drove a Mais truck, was late, too. He lost two hours in repairing damages sustained when he struck a Ger-

American Tourist; J. J. Mayer, Auburn; R. B. Mann, Hudson; P. Haycock, Reo; F. L. Apgar, Lion; M. F. Apgar, Lion; J. W. Mason, Maxwell; L. F. Pfeiffer, E-M-F.; R. E. Gillan, Ford; M. H. Jolly, Flanders; H. C. De Rai-mes, National; John B. Wallace, Cole; Herman Peterson, Premier; Thomas Buckner, Oakland; F. J. Rodel, Correja; H. O. Carter, Washington; R. C. Clements, Lion; Casper J. Maier, Oakland; Louis J. Blanchard, Herreshoff.

The penalized contestants were as follows: Thomas McGuire, McFarland, 1; W. H. Samuel, Metz, 4; M. F. O'Neill, Paterson, 8; Frank L. Kramer, Cutting, 1; J. R. Mann, Auburn, 2; F. F. Briggs, Maxwell, 1; J. M. Gray, Schacht, 2. Those who started as non-contestants, including the four commercial vehicles, were as follows: C. L. Fitzgerald, Packard; Geo. D. Smith, Peerless; Walter H. Ellis, Pierce-Arrow; F. Marwin, Maxwell truck; V. Richardson, Johnson truck; C. Robinson, Mais truck; W. Wakefield, Commer truck.

HERRICK LEADS ACROSS THE DESERT

Californian Again Wins Strenuous and Spectacular Western Race—Tetzlaff and Others Wrecked on the Way.

Harvey Herrick, piloting the National which he drove to victory in the big road race at Santa Monica, Cal., October 14th, added to his fame by again winning the famous "desert race" on Monday last, 6th inst. He covered the heart-breaking course of 542 miles from Los Angeles to Phoenix, Ariz., in 20 hours and 22 minutes running time. Two hours later Ralph Hamlin, driving a Franklin, checked in at the fair grounds, having covered the course in 22 hours, 54 minutes and 53 seconds running time. Frank Siefert, at the wheel of a Midland, was third. His running time was 24 hours, 21 minutes and 24 seconds. W. E. Ferguson (Buick) was fourth, it having taken him 26 hours, 26 minutes and 35 seconds running time to make the trip.

The race was run under the auspices of the Maricopa Automobile Club, of Phoenix, the start from Los Angeles being made at 10.45 p. m. Saturday. There were 16 starters, who at five-minute intervals left in the following order: Clarence Smith (Maxwell), W. D. Tremaine (Pope-Hartford), William Bramlette (Cadillac), William La Casse (E-M-F), George Soules (Flanders), Harris Hanshue (Mercer), Johnny Jenkins (Cole), W. B. Brong (Case), Harvey Herrick (National), Louis Nikrent (Buick), Teddy Tetzlaff (Fiat), Frank Siefert (Midland), Charles Bigelow (Lexington), W. E. Ferguson (Buick).

The course, which is 100 miles longer than last year, when Herrick (then driving a Kissel car) first flashed into prominence, lay south from Los Angeles to San Diego and thence eastward through some of the worst roads that are to be found in northern Mexico. Through Steele Canyon near the border line the going was such that it was almost impossible for the cars to pass each other, and at Devil's Canyon, Copopah and from Andrade to Yuma there are few miles of good road. Where there are no rocks there is sand—desert sand—and often there are both rocks and sand, while human beings and human habitations are few and far between.

The cars suffered all kinds of trouble, and as the result of a collision with a telegraph pole after leaving San Diego, Teddy Tetzlaff and his mechanic are in a hospital at La Mesa. Neither was seriously injured, although their Fiat car was wrecked.

Clarence Smith (Maxwell) was not so fortunate. After being delayed an hour near El Centro repairing a broken spring, his car skidded and turned over at nearly the same place Tetzlaff met with the accident. Smith and his mechanic, Earl Francis, were thrown from the car and

badly injured, the latter sustaining two broken ribs. Both were taken to the La Mesa hospital. Harris Hanshue (Mercer), after a series of mishaps, also abandoned the race, and William Bramlette (Cadillac) was delayed several hours at Santa Ana on account of a broken gasoline line.

When George Purdy Bullard planned the route he determined to make it a severe test on both cars and drivers, although special provision was made for passage through Mexico, where passports and clearance papers were necessary. To facilitate checking William Wallace, at Mexicali, went on the bonds for the cars, and as each reached the station the name of the car and number was inserted. These papers the drivers turned in at Andrade. From there to the Colorado river the route was through sand hills, and at the river the cars were ferried across to Yuma, the control, Sunday night. Herrick was the first to reach Yuma, and therefore was the first to get away from there Monday morning at six o'clock, the others following in the order in which they arrived.

Rader Climbs Fastest at Minneapolis.

Facing a cold, raw wind in the presence of 500 spectators, W. C. Rader, at the wheel of a National, captured two prizes and otherwise covered himself with glory Thursday last, 2d inst., at Columbia Heights Park, Minneapolis, Minn. The occasion was the twice postponed and much dampened hill climb under the auspices of the Minneapolis Motor Club. The hill is 1,308 feet long, with an average grade of 6.63 per cent. Much trouble was experienced with the timing apparatus, and as a result stop-watches were used. According to these Rader hung up a record for the hill of 20.04 seconds and won the trophy in his class. He also took the free-for-all, negotiating the hill in 20.20 seconds. John McDowell (Ford) won the trophy in the 161-230 inches displacement class by topping the hill in 21.73 seconds, and in the division for large cars the prize went to Abe Prescott (Peerless), who made the ascent in 27.20.

Much Mixed Sport at Sioux Falls.

Sioux Falls, which, needless to say, is in South Dakota, has had its first taste of automobile racing, but before another meeting is held some course other than a dirt track which is used to exercise thoroughbred horses will have to be provided. The meet was held Saturday, 4th inst., on Clark Coats' private track, and but three events were decided: During the first one Art Berry, driving an E. M. F., skidded on the turn and was crashed into by G. M. Gilbert (Chalmers). Both cars were wrecked, and although the drivers were thrown out neither was injured. The race was declared off. A match race for Velie cars between Knapp Brown and Roger Dennis, at five miles, was won by Brown in 7 minutes and 39¼ seconds.

McNAY THE STAR AT COLUMBIA MEET

Only One Event Escapes Him—Lundgren Leads Small Car Racers—Jagersberger Spills and Crushes a Leg.

Jay McNay, driving a Case, was almost the "whole thing" at the two days' race-meet which marked the close of the South Carolina State Fair, at Columbia, Friday and Saturday, 3d and 4th inst., taking five of the six events he entered. Joe Jagersberger, who probably would have given him a run for the money, was disabled during a practice test prior to the first race on the opening day. While driving a new Case, Jagersberger threw a tire while going better than 60 miles an hour. The car turned over and he was buried beneath. His right leg was crushed below the knee and he was otherwise injured. The Automobile Club of Columbia, under whose auspices the races were held, rushed Jagersberger to the Knowlton Infirmary, where it is thought that the leg may have to be amputated. The summary:

Friday, November 3d.

One mile time trials—Won by Jay McNay (Case), time 0:56.40; second, B. McFadden (Maxwell), time 1:11.20; third, Francis Lundgren (Flanders), time 1:14.50; fourth, Odom (E-M-F), time 1:16.20; fifth, Cohen (E-M-F), time 1:20.

Five miles, Class C, under 230 inches displacement—Won by Francis Lundgren (Flanders); second, Odom (E-M-F). Time, 6:21.50.

Ten miles, Class C, 231-300 inches displacement—Won by Jay McNay (Case); second, B. McFadden (Maxwell). Time, 11:09.80.

Twenty-five miles, free-for-all—Won by Jay McNay (Case); second, Clarence Rawls (Jackson); third, Francis Lundgren (Flanders). Time, 25:32.

Saturday, November 4th.

Five miles time trial—Jay McNay (Case). Time, 4:46.60.

Fifteen miles, Class E, under 230 inches displacement—Won by Francis Lundgren (Flanders); second, B. McFadden (Maxwell); third, Odom (E-M-F). Time, 19:20. Lundgren disqualified.

Ten miles, Class C, 231-300 inches displacement—Won by Jay McNay (Case); second, J. F. Maxwell (Case). Time, 12:03.

Twenty-five miles, free-for-all—Won by Jay McNay (Case); second, J. F. Maxwell (Case); third, Francis Lundgren (Flanders). Time, 26:36.

Five miles, free-for-all handicap—Won by Odom (E-M-F), 105 seconds; second, Jay McNay (Case), scratch; third, J. F. Maxwell (Case), 35 seconds; fourth, Francis Lundgren (Flanders), 75 seconds. Time, 5:05.

SMALL CARS RULE AT BERLIN SHOW

**"Baby" Sizes and Fours Predominate—
Development of "Stream Line" Bodies
—A Center Steered Limousine.**

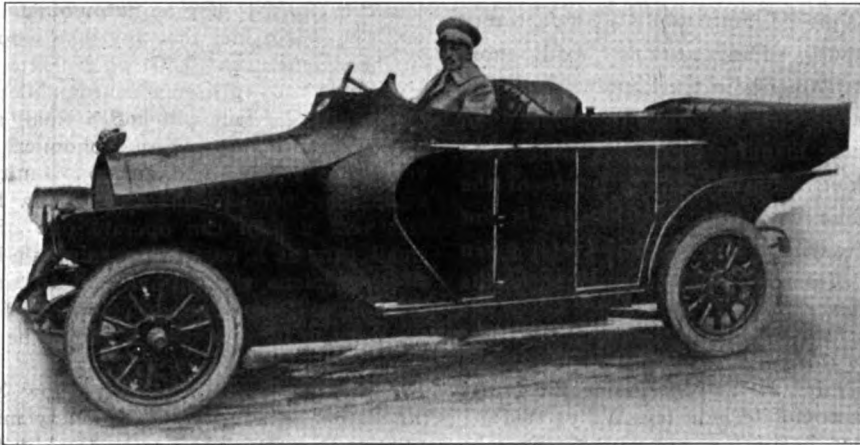
Although the exhibit of automobiles at Berlin, which held the attention of the German public during the ten days October 12-22, was styled an "international show" it was less deserving of the title than any of

exhibited three models. Four hundred German accessory makers elbowed the scant dozen "foreigners" in this department into the corners. As an international show, therefore, the exhibit was a disappointment, but as an indication of the present stand of the automobile industry in Germany and the popularity of the small car it was a revelation. The 1911 Berlin show was pre-eminently a "small car show."

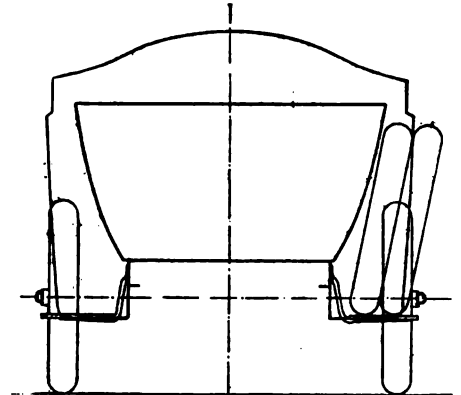
Germany for years has been the land of the small car. But even people familiar

made by Brunau, Weidmann & Co., of Zurich, Switzerland, which follows the Knight idea, but in all other respects the improvements of a mechanical nature were mere matters of detailed refinement. Valves in nearly all cases are enclosed, the general tendency, amounting almost to a slogan, being "noiseless, but not valveless," and in several of the latest examples of enclosed valve motors the noise is eliminated to an extent which would have been considered unattainable a few years ago.

In body construction, too, there was little of a revolutionary nature. The "stream



THE DELMENHORSTER "CAR OF THE FUTURE"



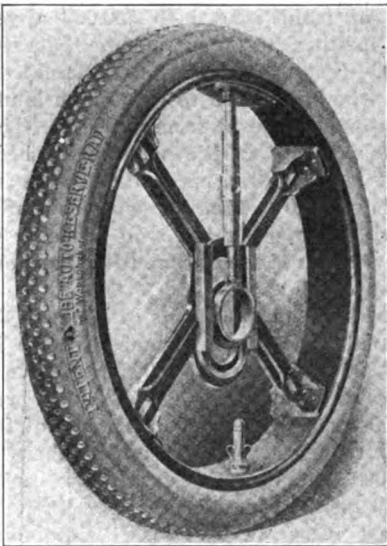
DELMENHORSTER REAR ELEVATION

the previous shows held in the German capital. As a matter of fact, the show was distinctly and predominately a national exhibit—the product of German manufacturers completely smothering the combined

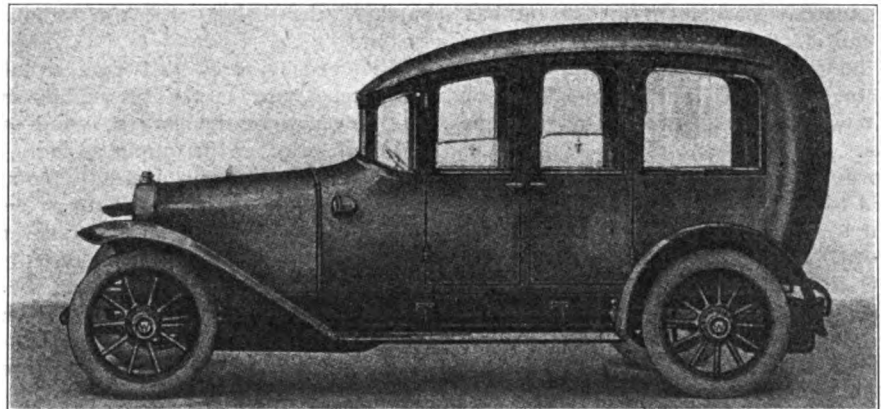
with the prevailing tendency for low horsepowers hardly were prepared for the veritable "babies" shown during the recent exhibit. Chief among these was the six-cylinder Loreley, exhibited by Rudolf Ley, Maschinenfabrik - Aktiengesellschaft, Arnstadt-Thuringen. This, the smallest six-cylinder stock car in the world, develops only six horsepower according to the official German rating, or 20 horsepower at

line" body is gaining ground and the general tendency is toward longer wheelbase, larger tires, wider and flatter spring suspension, and toward bodies with rear-end compartments for tools and spare tires.

The chief novelty in the line of bodywork was a so-called "car of the future," which was exhibited by the Delmenhorster Body Factory, and which is shown by the accompanying illustration. This is an ex-



"JBE" EMERGENCY WHEEL



THE WINDHOFF LIMOUSINE WITH CENTER STEERING WHEEL

products of the English, French, Italian, Austrian, American and Swiss makers.

Forty-three German manufacturers showed 165 complete cars and 28 chassis, while the international contingent consisted of seven French, two American, one Italian, one Swiss, one English and two Austrian manufacturers. The United States' representatives were the Mitchell-Lewis Motor Co. and the Ford Motor Co., each of which

the brake. No less than 30 other small cars, ranging from five to 10 horsepower, all of four-cylinder construction, are shown. Practically all of the small motors, even those of six-cylinder construction, are cast en bloc.

Mechanically there was very little that can be called radical in either motor or transmission construction. True, there was one new sleeve-valve system, the Fischer,

treme example of the "stream line" effect, the footboards having been entirely eliminated and the step enclosed within the body, thus obtaining a perfectly smooth exterior and yet permitting of exceedingly generous storing space for handbags, spare tubes, baskets and similar requisites for long-distance touring. The air resistance which this car meets is said to be almost one-fourth less than that of the ordinary

torpedo model, while the difficulties of swirling air currents alongside and in the rear of the car are claimed to be completely overcome by this style of construction.

Among the standard limousines and laudaulets crowding the various spaces there was one which at first glance did not appear to be much different from the rest, and yet which probably showed the most revolutionary step yet taken in the arrangement of the steering column and the location of the driver's seat. In this limousine the manufacturer, Gebrueder Windhoff, Rheine i. W., has placed the chauffeur's seat and the steering wheel and column fairly and squarely in the center. The body of the car tapers gradually toward the hood, leaving a seat of single width in front of which the steering column is mounted. It is claimed that this arrangement renders steering and supervision of the road easier, while at the same time tending to balance the load more correctly and to give the passengers a more open view ahead.

In the line of accessories a number of novelties were shown, chief of which was the "JBE" emergency wheel, shown by the accompanying illustration, which is designed to be secured to the hub in the event of the breakage of the regular wheel. Signs familiar to the American motorist met the eye on every side, as Bosch, Klaxon, Mea, Jones, Michelin, Continental, F. & S., U. & H., Eiseman, Oildag and Gredag were among the names emblazoned.

As usual with industrial exhibitions in Germany, a lottery was run in connection with the show, the management having purchased 35 of the cars on view, ranging from a seven-passenger limousine listed at \$6,000 to a runabout, and put them up as prizes.

Making High Powered Cars Prohibitive.

The Austrian parliament at present has under consideration a new automobile law, which boosts the prices for licenses two and three-fold, especially in the case of high powered cars owned by foreign tourists.

According to the new regulations, which are said to be certain of adoption, automobiles of less than six horsepower will have to pay \$17; from 6 to 10 horsepower, \$20; from 11 to 25 horsepower, \$40; from 26 to 35 horsepower, \$75; from 36 to 45 horsepower, \$120; from 46 to 50 horsepower, \$210; from 51 to 60 horsepower, \$240; from 61 to 70 horsepower, \$270. Foreign tourists, who only intend to remain a few days—up to ten days, inclusively—must pay one-tenth of the annual fee; if they desire to stay two months, one-fourth; three months, one-half; four months, full fee.

How high these fees are is clearly shown when compared with the registration fees current in Germany. Here the amounts range from \$7 to \$80, while the tourists pay \$0.75 for one day's stay; \$2 for two to five days; \$3.75 for 6 to 15 days; \$6.25 for 16 to 25 days; \$10 for 31 to 60 days, and \$12.50 for 61 to 90 days.

RECKONING THE INDUSTRY'S FUTURE

Willys Points Out Statistics on Which Big Manufacturers Pin Faith—Large Possibilities Yet Untouched.

While it is easy to account for the figures which stock jobbers and company promoters call to their aid and with which they seek to bedazzle a credulous public, there are those who often have expressed amazement at the courage displayed by large and well-established automobile manufacturers in constantly adding to their already enormous investments in brick and mortar and machinery. They are prone to wonder upon what these manufacturers base their reckonings and estimates of the future of the automobile business. The answer is not always easy, but it never was better given than by John N. Willys, president of the Willys-Overland Co., of Toledo, O., in his address at the banquet tendered him last week by the business men of his old home town, Elmira, N. Y. Discussing the future of the automobile industry, Willys said:

"I once heard the story of a man who went hopelessly insane through frantic speculation as to what becomes of all the pins. He would argue by the hour that there were millions of pins made every day—that nobody wasted them—that nobody eats them. What becomes of them all?

"A question of much more importance—and seemingly as hard for a lot of people to solve now—is 'What becomes of all the automobiles?' Why, bless you, the manufacturer sells them to the dealer and the dealer sells them to the banker, the lawyer, the doctor, the merchant, the farmer, the butcher, the baker and the candlestick maker.

"Nineteen hundred and twelve will be the banner year in the automobile industry. Never were the cars so good—never so low in price or the output so big.

"Big quantity production, complete standardization of parts, thorough design, the best workmanship and materials enable the automobile manufacturers of America to eclipse the world in furnishing the best for the least money, which, after all, is the meat of the cocoanut in a nutshell.

"The bromides may be heard on every hand mouthing that old one, in effect, that there are thousands of people running automobiles who cannot afford them. I have made a little personal investigation along this line and I have the figures to prove that there is nothing in that 'old chestnut.'

"There are now registered in the United States 405,000 automobiles. There are approximately 50,000 in the States where no registration is required. We boast of a total population of ninety million people, thus up to date only one in every 200 owns an automobile.

"Take, for a good example, the city of

Toledo. We have a population of about 200,000 people. There are 2,200 automobiles—of all kinds—owned there. I happen to know, personally, a great many of the people who own these automobiles, and I have taken pains to investigate a great many of the others, and I can say, without hesitation, that all of them, at least with a very small percentage of exceptions, can well afford to own an automobile, or two of them if they feel like it. An examination of the tax duplicates will show that there are in the city of Toledo probably 15,000 who can afford to buy an automobile.

"Now, it is a fact that any man who has an income of even \$1,800 or \$2,000 a year can afford to own a small automobile; and as a matter of fact will find a small automobile not a luxury but an economical convenience. I have had an opportunity to make some comparisons and I know for a fact that a man can operate one of the small cars at a cost for repairs, up-keep, tires, gasoline and oil—all not to exceed \$25 a month; providing, of course, he drives the car and handles it as it should be handled.

"Statistics show the country now has a population of approximately ninety million people; to quote official statistics, by families, there are in the United States 18,890,000; 1,786,000 families have an income of between \$1,200 and \$1,800 a year; 1,446,000 families have an income of \$1,800 to \$3,000 per year; 704,000 families have an income of from \$3,000 to \$6,000 per year; 220,000 families have an income of from \$6,000 to \$15,000 per year; 43,000 families have an income of from \$15,000 to \$60,000 a year; 7,000 families have an income exceeding \$60,000—thus there are 4,208,000 families, at least, who can afford to own some kind of an automobile—price from \$1,000 up. There are now in use in the country—as before stated—but 455,000 cars; thus there still remain 3,753,000 families who can afford to own automobiles and who probably will when the factories get time to make enough to go around.

"There are on the farms of America 891,000 families who have incomes of from \$900 to \$1,200 per year; 286,000 who have incomes of from \$1,200 to \$1,800 per year; 172,000 families who have incomes of from \$3,000 to \$6,000 per year; thus there are 1,349,000 families on the farms who can and should own automobiles.

"Last year (1910) 25,000 automobiles were sold to the farmers of America. There are now, approximately, 50,000 cars on the farms, so that this leaves us 1,299,000 families in the rural districts still to be supplied with automobiles.

The above figures show, of course, the outlet for automobiles by families only and does not take into account the unmarried of our population, the cars exported nor commercial cars. And the export of automobiles has increased from less than \$1,000,000 in 1901 to almost \$20,000,000 in 1911."

SELDEN CARS ON SINGLE CHASSIS

But Five Styles of Body Afford Plenty of Variety—Rear Axle and Other Points of Improvement.

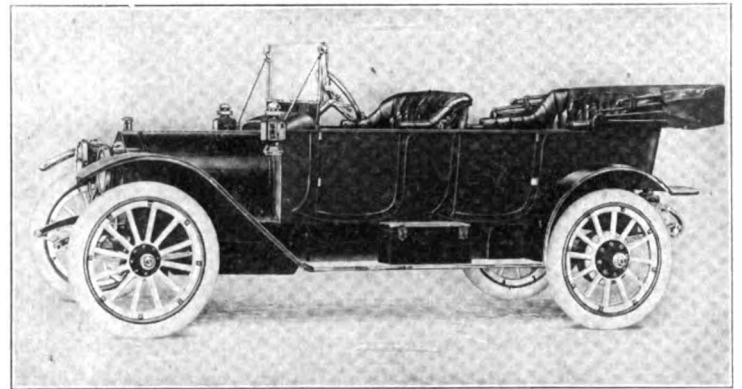
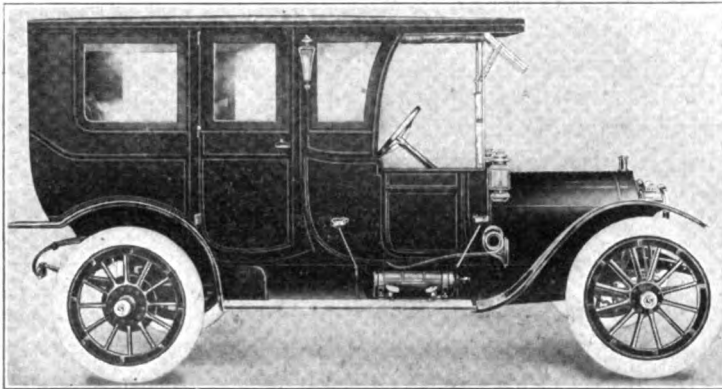
In exploiting a single chassis which, in addition to incorporating many of the sterling features that marked the three chassis which last year made up the line, also embodies a number of new ones, the Selden

drums is prevented in a novel and efficacious manner. Sleeves in the wheel hubs lead any oil which may work out along the drive shafts into annular recesses in the brake flanges, from where it is drained out on to the road. The brakes themselves remain practically unchanged, both sets being of the internal expanding type on the rear wheels with bands $1\frac{3}{4}$ inches in width and 14 inches in diameter.

Having produced a motor which has proven perfectly satisfactory for a number

high-tension magneto connected to one set of plugs and an independent battery system operating through separate plugs. A four-unit coil with master vibrator is used, and the timer, which is mounted on a vertical shaft between the cylinders, is of the roller type. Current for the independent system is supplied by a battery of six dry cells carried in a box on the running board.

The cone clutch which has served in the past has been replaced by one of the multiple disk variety in which there are 13 disks.



THE SELDEN LIMOUSINE WHICH LISTS AT \$3,750, AND THE \$2,600 TOURING CAR

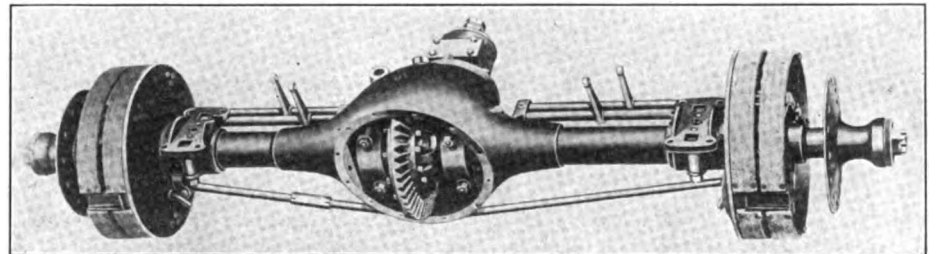
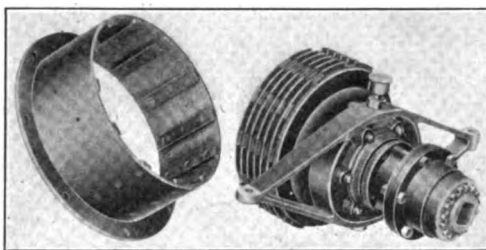
Motor Vehicle Corporation, Rochester, N. Y., still has left little to be desired by the intending purchaser in the matter of variety of body styles. For the ensuing year the Selden line permits a choice of four open bodies and a limousine, all of which are mounted on the one chassis.

One of the more notable changes which have been made in the chassis concerns the rear axle. As heretofore, it is of the full floating type, but is of a new and improved design calculated to increase simplicity and to make more accessible the differential

of seasons, alterations have been deemed unnecessary and it remains unchanged except in minor details, of which the housing of the valve mechanism with an aluminum cover plate is the most noticeable. The four cylinders are cast in pairs and measure $4\frac{3}{4}$ inches bore by 5 inches stroke. All the valves are arranged on one side of the motor and are interchangeable; their diameter is $2\frac{1}{4}$ inches. Particular emphasis is laid on the fact that six gears in the motor comprise the total. All of them are of the spiral type, a detail of construction

It is enclosed in a housing bolted to the flywheel and is arranged to run dry, the driving disks being faced with an asbestos material riveted in place and the driven disks being plain. Providing an easy method of adjustment without the necessity of removing the housing or dismantling the clutch mechanism in any way, the studs on which the spiral clutch springs are mounted extend through the housing. To increase the "sweetness" of action of the clutch, a clutch brake is fitted.

The three-speed selectively operated



THE NEW SELDEN MULTIPLE DISK CLUTCH AND REAR AXLE CONSTRUCTION

mechanism, the bearings and the axle shafts. Differing from usual practice in full floating axle construction, the axle shafts carry driving flanges through which the hub bolts pass. Thus the possibility of lost motion at these points is eliminated while at the same time the hub caps are relieved of one of their duties in holding the shafts in place. A liberal sized cover plate in the axle housing permits of easy adjustment of the differential or the removal of the whole mechanism intact.

Indicative of the attention which has been given small and more or less obscure details, the leakage of oil into the brake

which contributes materially to the silent operation of the power plant. Circulation of the cooling water is effected by means of a centrifugal pump and lubrication is made certain and positive by a combination splash and constant level system in which a gear-driven paddle pump serves to maintain a constant level in the oil wells under the connecting rod big ends. An easily discernible gauge is provided to indicate the oil level in the reservoir in the crankcase.

The ignition system remains the same as has been used with considerable success for the past four years and embraces a Bosch

change gear set has been retained practically without change; high speed is direct drive. All of the shafts are carried on Timken conical roller bearings and one of the noteworthy features of the construction is that adjustment for wear may be made from the outside without disassembling any part of the system. As heretofore, motor, clutch and change gear mechanism are carried on a sub-frame.

Very little change in body styles has been made; in general the lines remain practically the same, except that the open bodies have acquired even smoother and more pleasing exteriors. The price of the

model 40-T five-passenger touring car (now styled Model 47) has been advanced to \$2,500, which price includes as standard equipment such items as top complete with side curtains and dust envelope, windshield, Prest-O-Lite tank, combination oil and electric side and tail lamps, horn, foot rail, robe rail, tire irons and a complete set of tools. The same equipment is included with all the open bodies, and all bodies are equipped with front doors.

Other than the five-passenger touring car there is a seven-passenger touring car which lists at \$2,600, a four-passenger torpedo model and a two-passenger roadster with rumble seat, both listing at \$2,500, and the limousine at \$3,750 which makes its first appearance this season. The limousine

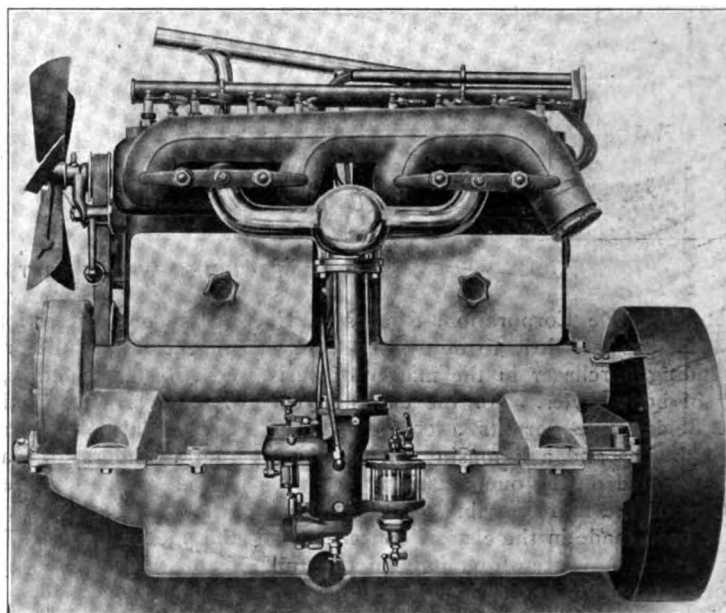
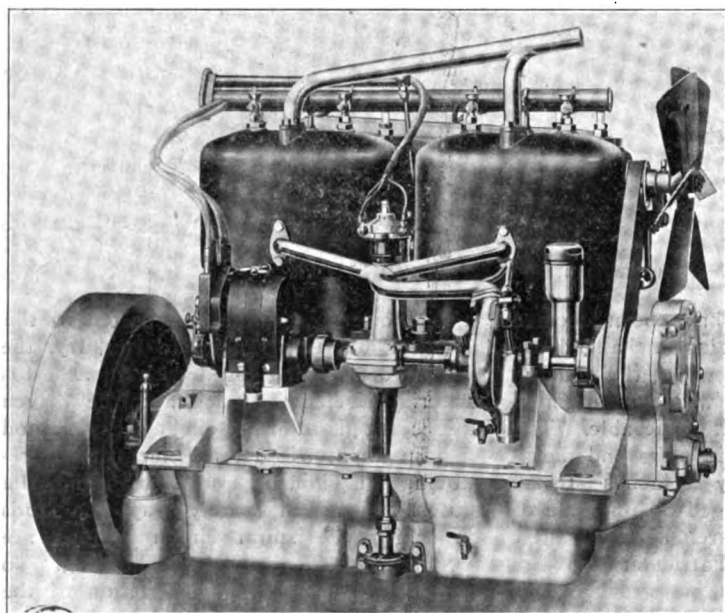
HAS NOT HURT RAILWAY EARNINGS

Popular Notion That Automobile Has Reduced Railway Travel Disproved by Statistics—"Travel Makes Travel."

Periodically the automobile is held responsible for about every crime on the calendar and almost every business disturbance that ever has found its way into print. Among the many things, it often has been charged with eating into the earnings of the railway companies' passenger departments, and on the face of things no charge appeared more easily believable. But the Railway Age-Gazette has brought

tween the two is deepened by the fact that during the last decade there have been some special and familiar forces operating adversely to passenger traffic. During that period the long-distance telephone has come in more and more as a commercial and industrial coefficient. It has reduced what but for it would obviously have been a large volume of railway travel. Is it to be added the automobile, likewise affecting a wealthy group of habitual travelers; and finally there has been the extension of competing street railways, using the term to include cross-country and long-distance lines.

The long-distance telephone has had hardly a perceptible qualifying feature. Now and then it may enable Brown to



RIGHT AND LEFT SIDES OF SELDEN MOTOR, SHOWING VALVE ENCLOSURE

body is of aluminum and accommodates five passengers in the rear compartment. Standard equipment includes curtains, extra swing seats, foot and robe rails, dome light, umbrella holder and toilet case. Inside, the body is finished luxuriously in broadcloth or whipcord in colors which harmonize with the outside paintwork.

The wheelbase of all models is the same—125 inches—and all are fitted with 36x4-inch tires mounted on Firestone quick detachable and demountable rims; the road clearance is 10 inches. Springs of the three-quarter elliptic variety are used in the rear as heretofore, and the front of the cars is supported on semi-elliptic springs.

New South Wales Has 3,500 Automobiles.

According to the report of Consul-General John P. Bray, at Sydney, N. S. W., there are 3,500 cars in use in that colony alone, no less than 2,000 of which have been purchased during the past eight months—January to August, 1911. The number of licensed drivers far exceeds this number, there being fully 4,500 registered in the State.

to bear statistics which serve to put even that popular notion to rout. The figures indicate that despite the free and increased and enormously increasing use of automobiles for both long distance and short distance travel, the railways' passenger traffic greatly has increased; their losses have occurred in the freight business.

The records of railroad traffic show in passenger miles a mile an increase since 1901 of 54 per cent., as compared with 43 per cent. in freight ton miles a mile; and even during the panic period, 1907-8, they increased about 5 per cent., while freight business decreased nearly 8 per cent., says the Railway Age-Gazette in dealing with the subject. Hard times in business admittedly hit the freight business first, particularly that branch of it that covers factory products; passenger traffic is affected later and often only after a considerable interval. Yet on the theory that business travel should go with business itself, one would think that the upward and downward curves of freight and passenger traffic should correspond pretty closely.

The seeming anomaly of a disparity be-

notify Smith to make a railway journey, but in the vast majority of cases it is a preventive. Not so, however, with the parallel street railway. At first an active and serious rival of the steam line, it has now, apparently, taking the country as a whole, become, in its secondary stage, a feeder. A small rival still between near together stations of the steam line, it has grown more and more to be a feeder from farther points. Its rivalry has been sunk in its character as a subsidiary, saying nothing of the larger values of the electric line as a direct lateral and its facilities for focusing travel at the urban station.

The automobile has the same duplex character of feeder and rival. It competes with the steam line at many points and often on long distances, but it also brings the home, the shop and the store in closer touch with the station. The rural home of wealth, formerly remote, is now hardly, by figure of speech, by automobile, across the street from the steam railway. The maxim that "travel makes travel" may prove as true in the relations of the automobile to railroads as in the case of the trolley.

BIG BROTHER OF BERGDOLL "30"

Employs Real Long Stroke Motor But Bears Family Resemblance—Has Self-Starter and Four-Speed Gear.

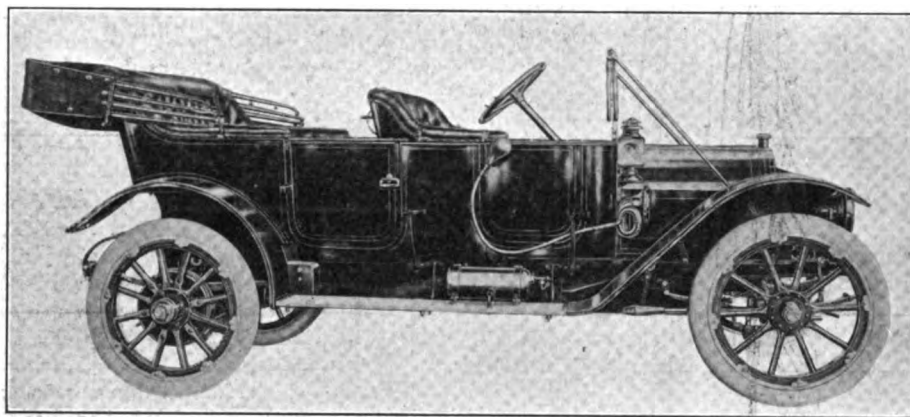
Having acquired a reputation with its 30-horsepower car, the Louis J. Bergdoll Motor Co., Philadelphia, Pa., has enlarged its line by adding a 40-horsepower chassis that is a fit compeer to the older model. The manufacture of the "30," which was brought out last year, will be continued, but with a number of mechanical changes and refinements that bid fair to make its reputation for general merit even more enviable.

In bringing out the new model it has been the aim of the manufacturers to fill the demand of that part of its clientele

have multiple disk clutches in which the alternate disks are faced with Raybestos.

Ignition on both cars is effected by means of a Bosch "easy starting" magneto; no batteries are used. The Atwater-Kent system, which was a feature of the "30" last season, has been discarded, though provision is made for it on both cars and it will be supplied if desired by the purchaser. It is not regular equipment, however. Lubrication is carried on in both engines in the same way, a constant oil level in wells beneath the connecting rod big ends being maintained by a plunger pump. A sight-feed glass on the dash serves to indicate that the system is in operation.

A full floating type of rear axle is used on both cars, the axle on the smaller model having undergone several minor changes making for greater simplicity and accessibility. Also both sets of brakes on both models are located on the rear wheels. The



BERGDOLL "40" WHICH MOUNTS A LONG STROKE MOTOR

which desires a car of greater power, but in which the principal features of the smaller model are retained. To this end the "40" is practically a reproduction of the "30," except as regards the motor and change gear mechanism. Like its predecessor, the new motor has its four cylinders cast in a single block with the exhaust valves at one side and the intake valves overhead. The stroke, however, is six inches as against 4½ inches in the smaller model, and inasmuch as the bore is four inches, the motor properly belongs in the long-stroke class. The bore of the "30" also is four inches. The Ever-Ready self-starter, which is a spring device that attaches in place of the starting crank, is supplied only on the larger model.

In adopting for the new car a four-speed selectively operated change gear set in which the third speed is direct drive and the fourth is an overstep, the manufacturers have placed themselves in the field occupied by but a very few other manufacturers of medium-priced cars who feature this construction. Usually it is found only on the higher-priced cars, and its presence on the Bergdoll speaks well for the initiative of the car's producers. The three-speed selective gear set on the "300" has been retained, and both this car and the new one

construction of the "30" in this respect differs from last last season's models in that heretofore only the emergency brakes have been on the rear wheels, the service brake being on the propeller shaft. The wheelbase of both cars is the same—125 inches. Thirty-four by 3½ inch tires all around are supplied on the "30" and those on the larger model are 36x4 both front and rear. Quick detachable-demountable rims are standard equipment.

Two open bodies and four closed bodies are regularly supplied on the 40-horsepower chassis as follows: Four-passenger torpedo, seven-passenger closed front touring, seven-passenger limousine, coupe, Colonial coupe and landaulet. The prices with either of the open bodies is \$1,900 and the limousine lists at \$3,000. Standard equipment includes mohair Cape Cart top, folding glass windshield, tire irons, tools and horn. Practically the same equipment is included in the price of the three body styles in which the 30-horsepower car is marketed. The "Louis J," which is a speedy-looking roadster with closed-in driving compartment, lists at \$1,500, which price also applies to the small tonneau car and to the standard closed-front touring car.

BUILDING UP ELECTRIC BUSINESS

Some of the Things That Must Be Considered—Scope of the "Transportation Engineer"—Schools Desirable.

It is beyond question that no more thorough and comprehensive methods of increasing the use and broadening the application of motor vehicles ever have been employed than those which are now being brought to bear on the distribution of electric vehicles. Just how this movement is being carried out through the co-operation of electric vehicle manufacturers and the central station people, whose interests are centered in the spread of electric vehicle transportation, is expressed briefly in the gist of a paper read before the recent meeting of the Electric Vehicle Association of America, and of which R. L. Lloyd and John Meyer were the authors. The keynote of the movement is the function of the none-to-well-known "transportation engineer," but the suggestion of a school for electric chauffeurs is the most striking thought that is evolved.

"The term 'transportation engineer,'" say the authors of the paper in question, "has been recently coined to apply to the technical manager of that branch which would take cognizance of all those demands of a business relating to the delivery of goods. The decision to discard the present transportation system and to install an electric vehicle system is based upon the same fundamental facts that decide the substitution of electric motors for other forms of power. However, in cases where the number of vehicles used or the character of the business does not justify the employment of a transportation engineer, then the central station salesman should act in this capacity in the interest of the prospective purchaser. The present stable practice must be studied, the facilities for loading at the store, the routing, the capacity carried, and in addition thereto, the disadvantages of the present system compared with the advantages of the proposed system. It is now pretty generally acknowledged that the department should retain the services of what is negatively termed a 'trouble man,' to respond to any call for trouble, diagnose the case, and either correct the deficiency or else give positive information as to the nature of the trouble.

"When automobiles became so numerous a few years ago, schools were started where men were educated to become chauffeurs. It seems to us that it would be proper that such schools should be started for electric vehicles. There certainly will come a day when the central stations will rebel against furnishing all the brains and labor necessary to take care of electric vehicles. While the industry is in its in-

fancy, they are, of course, willing and anxious to do some things for the promotion of the cause which they could not be reasonably expected to keep up indefinitely.

"One of the first requisites for the building of an electric vehicle business in any city is the establishment of properly equipped garages. Garages improperly or poorly equipped, or in charge of inefficient or careless attendants, act as a decided setback to progress. It is naturally difficult to get anyone to open such an establishment before there is a demand for it. The expense of maintaining an independent garage is considerable, and inasmuch as the growth of the use of electric vehicles is very problematical when the campaign is first inaugurated, the capital may be tied up for a term of years. In several of our cities the central station has made the investment in a large, well-equipped garage,

GREAT WESTERN'S DETACHABILITY

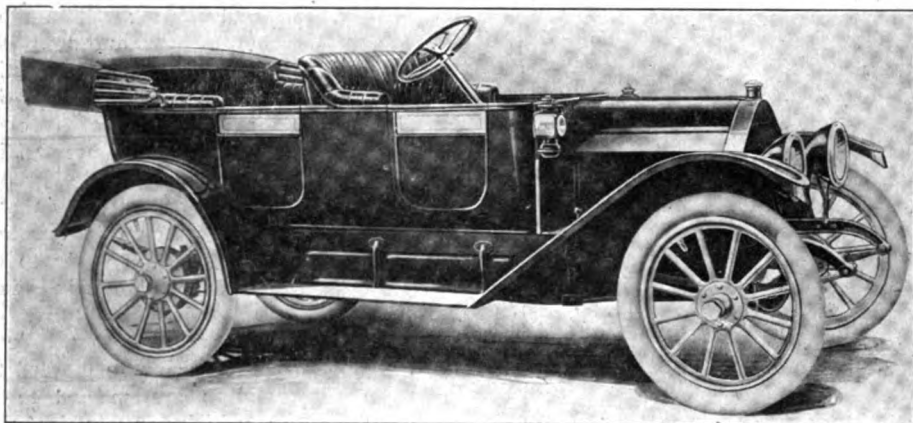
It's in the Front Door But the Idea is Ingeniously Carried Out—Some Other Notable Features.

With the laudable intention of increasing the comfort of passengers, while at the same time enhancing the pleasing appearance of its product in general, the Great Western Automobile Co., Peru, Ind., has placed on the market a new touring body in which a little more than the usual amount of attention has been paid to details, the body being regularly supplied on the standard 40 horsepower Great Western chassis, to the manufacture of which the company devotes its entire attention.

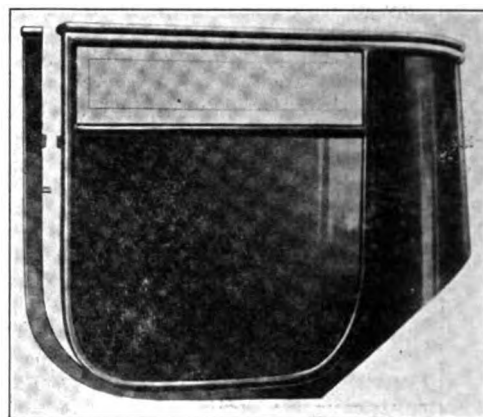
The principal feature of the new design

Obviating the necessity for disturbing the occupants of the rear seats, the compartment beneath these seats may be reached through a door at the back of the body. The door swings on piano hinges and is provided with a lock and key to keep out prying hands.

The outside of the body has been kept clear of projections, door hinges being concealed and the control levers placed inside close to the driver's right hand. Particular attention has been given the necessity for ample leg room. The paintwork is in holly green with door panels in cream striped with black; the body mouldings and dash are of black walnut. To further carry out the idea of conservative coloring, the lamp equipment is finished in black enamel and embraces Solar electric headlights operated from a 120-ampere hour Elba storage battery and oil side and tail lamps.



GREAT WESTERN "40," SHOWING NEW BODY AND THE CLEANLY DETACHABLE FRONT DOOR



and after a few years it has become a paying investment.

"If one could judge from the attitude the automobile dealer generally assumes when discussing matters with the central station man, we would all be led to believe that a low rate for electricity is the one object that stands in the way of the immediate universal adoption of electric vehicles.

"However, do not misunderstand this paper to be a plea for high rates for electricity. Its object is to assure the vehicle man that the central station is seeking to do the very thing they are asking for, viz., the establishment of lower rates, but at the same time to request them to not become impatient with the apparent tardiness—to try and see the problem through other eyes and to give credit for already making some progress where credit is due."

New Jersey Stage Line Expanding.

The Passaic Valley Transportation Co., which has been operating an automobile stage line between New Providence and Summit, N. J., has increased its capital stock to \$2,000. The capital stock is nominal, as the company already had acquired ground for a garage and will add a new motor bus to its equipment.

is the construction of the front doors, which are arranged so that they may be easily and quickly detached. Of course, detachable doors no longer are novel, but whereas the term usually signifies exactly what it means, that the doors along may be removed, detachable in the Great Western sense means quite a little bit more. For not only may the doors be taken off, but when they are removed, door-jamb, posts, mouldings and all come away with them, leaving an open front touring car that suggests not a whit the closed front car from which it was converted. Just how the transformation may be made is illustrated in the accompanying pictures, which show the car with the front doors in place, and one of the doors removed, together with its posts and moulding.

In presenting the new body, the manufacturers have been at considerable pains to make of it a sort of body de luxe throughout, and just as careful attention has been given other details of construction. Thus the leather work is hand buffed and is fitted over curled hair and springs. Arm straps are fitted for the convenience of tonneau passengers and a compartment between the front seats is provided for the reception of route books or memoranda.

The price of the new car is \$1,750, such items of equipment as a mohair top and side curtains to match, rubber dust hood, brass bound folding windshield and model 26 Stewart speedometer being furnished ready fitted to the car at an extra cost of \$100.

"Coupes" to Be Made Smokable.

The Miller-McKee Cigar Co., of Indianapolis, has been incorporated in Indiana for the purpose of distributing a brand of cigars to be known as the Cole cigar, which will be manufactured by the Santa Clara Cigar Mfg. Co., of Brunswick, Ga., of which L. Carter, president of the Henderson Motor Sales Co., also is president. Associated with C. D. F. Miller, president of the distributing company, as directors in the cigar venture, are J. J. Cole, of the Cole Motor Car Co., H. P. and C. P. Henderson of the Henderson Motor Sales Co., and Homer McKee. The company will turn out a high grade Havana cigar in seven styles, each of which will take the designation of a particular model of Cole car, which means that a man with 10 cents soon will be able to smoke a "Cole Coupe" or London limousine even if he cannot afford to ride in one.

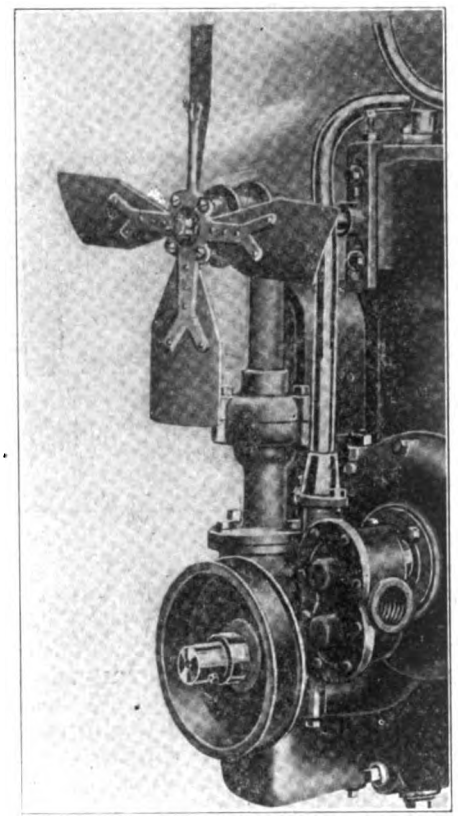
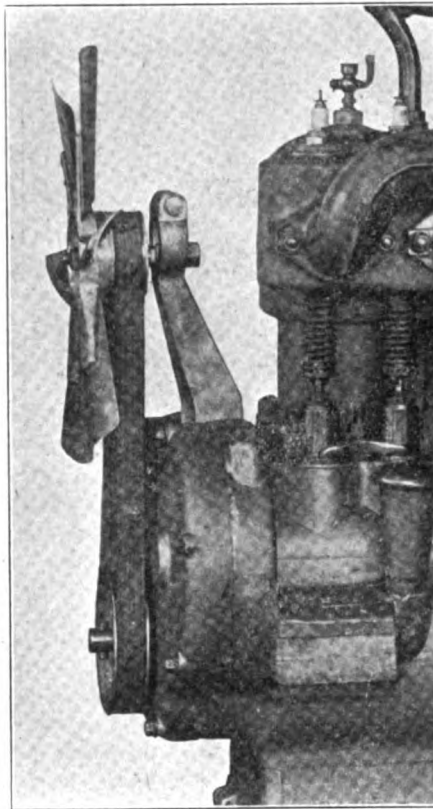
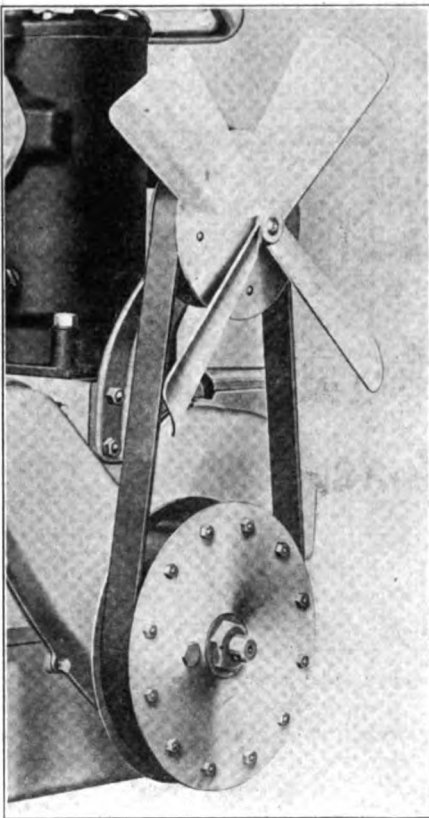
Fans as Factors; Methods of Mounting and Driving

Though automobiles have been brought to a state of perfection that is well-nigh unassailable, one of the curious inconsistencies is that with the advent of cold weather almost nine cars out of the proverbial ten blossom out with various contrivances placed in front of their radiators to reduce the amount of cold air that is drawn in by the fan. Of course, the reason for such screens is perfectly plain—without them the cooling apparatus maintains the

For the remedy there are just two alternatives—either a series of variable speed pulleys must be provided or the fan blades must be so mounted that their pitch may be changed to suit the altering temperature conditions. The first method scarcely is possible for the reason that too much space would be required for a number of pulleys if the ordinary type of flat belt were used. A round belt might be used and a series of pulleys then could be made to occupy a

been understood and maintained in proper adjustment.

In view of the tendency toward simplicity and the efforts to make everything possible "adjustmentless," it is not unlikely that the necessity for occasional adjustment of the blades of such fans has deterred more manufacturers from adopting them. Naturally a motor cannot be expected to operate efficiently too hot any more than it can too cold, and for this reason the average



FIGS. 1, 2 AND 3—REPRESENTATIVE TYPES OF BELT DRIVEN FANS—STODDARD-DAYTON, VELIE AND RUTENBER

motor at a temperature too low for efficiency. To allow the motor to retain some of its heat and therefore operate to deliver its rated power on the proper number of pints of gasoline per hour, it is necessary to shut off part of the draft of cool air that is drawn through the radiator.

There is no doubt but that the screens really perform their work. That is not the question. Rather the question is, Why should not the fan itself govern the amount of air that is drawn in, instead of uselessly "flapping the wind" behind a screen and wasting power. For it most assuredly does require power—a greater amount than generally is supposed—to drive a heavy fan at from twice to three times crankshaft speed, which is close to the rate at which the average fan runs.

very small space. There is an objection to round belts, however, in that it is difficult to devise a method of joining the ends of the belt so that they will not come apart at inopportune moments. Add to which, round belts are not as durable as flat ones and wear or pulleys centers have to be adjusted for stretch more often than is the case when flat belts are used.

From which it becomes apparent that the only practicable way out of the difficulty is to provide means whereby the fan-blade pitch may be increased during hot weather when the maximum draft is required and decreased in winter when very little cold air is needed. As a matter of fact, fans of this variety have appeared on several cars of foreign manufacture and have proven successful wherever they have

manufacturer prefers to endeavor to strike a happy medium rather than to go to the expense of equipping his product with more complicated parts and at the same time risk his reputation at the hands of novices who know little or nothing concerning the proper temperature at which a motor operates most efficiently.

Also it is an open question whether the ordinary four- or six-bladed fan really is necessary. To obtain the greatest thrust, or, in other words, to displace the greatest volume of air at a given number of revolutions per minute, aeroplane propellers, which operate on exactly the same principle, though the application is slightly different, have only two blades. The percentage of efficiency of an aeroplane propeller is higher than is that of an automobile

fan, it is true, but only because the design of the aeroplane propeller has been more carefully and painstakingly worked out. If the same amount of thought and attention was given the fan in an automobile it is reasonably certain that very much greater efficiency and quietness could be expected at the least.

A two-bladed fan can be made that will perform the work of any of the four- or six-bladed ones that are used at present and should appeal to manufacturers if for no other reason than that it could be produced more cheaply than the other forms. Incidentally, it would allow of a more accessible engine which is a valuable feature in itself.

In some cars no fan is used, the spokes of the flywheel being formed like propeller blades so that they act as an exhaust fan to suck the air from the engine compart-

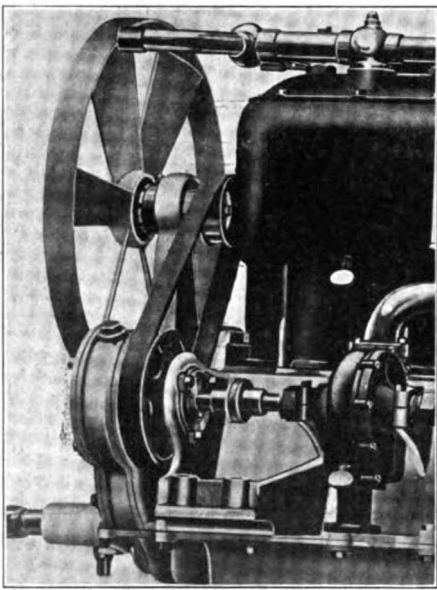


FIG. 4—AMERICAN BEL DRIVE

ment, cold air rushing in through the radiator to take the place of the hot air which is expelled. This system, of course, can be used only where the engine hood is tight and a long underpan is used. Opinions differ as to whether as high a degree of efficiency can be obtained by this method as can be obtained when a fan proper is used, though there are any number of cars in service in which this system is used that bear mute testimony to its efficiency. The majority of manufacturers continue to use fans, however, and each one has his own particular method of mounting and driving them.

Because of the speed at which fans normally run they always should be mounted in ball or roller bearings, and provision should be made for constant lubrication. Generally ball bearings are used and are packed in grease, which need not be replenished except at long intervals. When fans are so mounted they seldom give trouble, but if they are mounted in plain bearings and no provision for constant

lubrication is made, wear is rapid owing to the abrasive action of the dirt and dust that is drawn in through the radiator and they soon rattle and become a nuisance. If not taken in time there is grave danger that the bearings may become so worn as to let the fan sag sufficiently to touch and damage the radiator.

Assuming that the normal speed of an engine is 1,000 revolutions a minute, which is not too high, then a fan must run approximately twice this speed. At 2,000 revolutions a minute, the centrifugal force

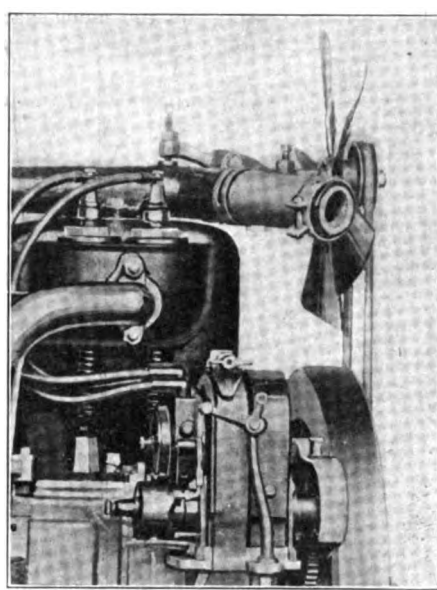


FIG. 5—MAXWELL CONSTRUCTION

generated in a fan is considerable and it must be so designed as to resist it and not fly apart under such conditions or when the motor is speeded up still more. Several cases have been known where fans have shed a blade or blades because they were not strongly enough made, but such occurrences are the least of the troubles that manifest themselves.

Perhaps the most common trouble is the breaking of belts. As light as fans are as a general rule, the sudden way in which they are started when the motor commences to fire places a tremendous strain on the belt until the fan has been accelerated to normal speed. Once it has reached normal speed, the strain is continuous and even and the chance of breakage is remote unless the motor is alternately slowed down and accelerated suddenly. For this reason, nearly all fans have their belts so adjusted that when the motor is started the belt slips slightly until the fan gets up to speed. This is a point which should not be overlooked when it becomes necessary to tighten a belt. It should not be made so tight that there is no slippage. If it is there is danger that the belt will break when least expected, in addition to which an unnecessary strain will be placed on the bearings and the fan supports.

With the present types of large flat belts very little stretching takes place and

they seldom require to be adjusted except at long intervals. Nevertheless, some method of easily and quickly lengthening pulley centers should be provided to obviate the necessity for removing the belt and shortening it. Usually provision for adjustment is made, though some manufacturers have overlooked this necessary feature.

But even in some cases where elaborate provision for adjustment has been made, it apparently has not entered the manufacturer's mind that belts do not last forever and require to be replaced at stated times. There are several cars on the market at present in which the replacement of a fan belt is an extremely laborious and dirty undertaking, owing to the location of the driving pulley. In one car it is impossible to replace the fan belt without splicing it to the old belt and drawing it over the

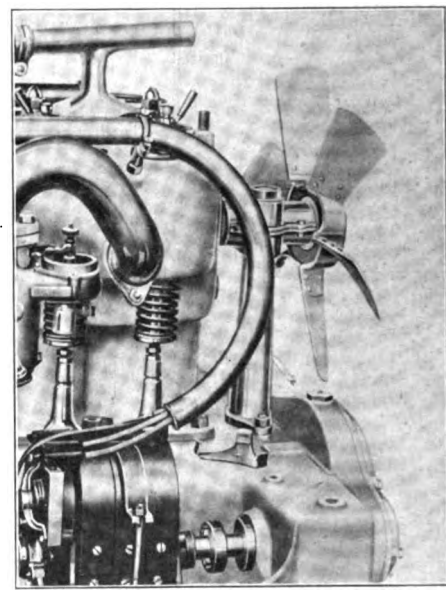


FIG. 4—AMERICAN BELT DRIVE

driving pulley in that way. If the old belt has come away from the driving pulley, nothing remains except to "fish" with a curved wire or to remove the radiator, the latter method usually requiring less time and expenditure of effort. Such construction is not as uncommon as might be thought, either, though it seldom is noticed until it becomes necessary to put on a new belt. The redeeming feature is that belts generally last a season at the least, and a new one can be put on easily when the motor is taken down for the annual overhaul.

At present the belt remains the favorite method of driving fans, though it would be hard to find any two manufacturers who employ the same system of "hook up." Generally a flat belt is used, the driving pulley being attached directly to the end of the crankshaft outside the crankcase, on the extension to which the starting handle is attached. This method is used on the Stoddard-Dayton-Knight engine, shown in Fig. 1, and also on the Velie engine, illus-

trated in Fig. 2, and the Rutenber engine in Fig. 3.

Stoddard-Dayton construction embraces the use of an aluminum fan in which the blades are cast integral with the hub and pulley. The fan is supported by a bracket which is bolted to the crankcase, provision for adjustment of the belt being made by arranging the pulley center so that it can be moved eccentrically within an outer ring formed with the bracket. This method of adjustment is shown more clearly in Fig. 2, and though the general arrangement is different, the principle is the same.

The outer ring encloses an inner member on which the pulley center is mounted near one edge. When the belt is placed in position it is laced to the proper tension when the pulley center is at the lowest point. Therefore, when the belt becomes worn or stretched it is a simple matter to loosen the inner member and move the pulley center eccentrically until the belt again is at the proper tension. In the Velie fan (Fig. 2) the hub and pulley are cast integral of aluminum and the fan blades afterward are riveted in place.

Rutenber construction in the method of mounting the fan for belt adjustment is very similar. The bracket, itself, however, is entirely different and is formed of an extension of the housing which encloses the vertical shaft from which the magneto is driven by means of skew gearing. The belt is not shown, though the two pulleys over which it runs are visible.

Though the majority of manufacturers prefer to place the belt in front of the fan and run it over a driving pulley attached to the crankshaft, there is a considerable number who place the belt behind the fan, the driving pulley being actuated by the shaft which operates either the magneto or the circulation pump or both, somewhat after the manner shown in Fig. 4, which is illustrative of American practice. With this arrangement it is a comparatively simple matter to replace the belt, in addition to which there is no danger of the fan sagging and rubbing against the belt, which occasionally happens when the fan and belt are placed closer together. The fan itself also is slightly different and is of a design which is used to a considerable extent. By the use of a strengthening ring soldered or riveted in place, the blades can be made very much lighter, and it is practically impossible for them to come loose, due to the action of centrifugal force.

The Maxwell fan, which is illustrated in Fig. 5, is mounted not on the engine itself but on the water outlet pipe leading to the radiator. The method used to permit the belt to be tightened is unique and is clearly discernible in the picture. The bracket which supports the fan is attached at its center and is in effect a lever which is held in place by means of adjustable screws at each end. When it is desired to tighten the belt it is merely necessary to tighten one screw and loosen the other, which

causes the whole bracket to rock and increase or decrease the distance between pulley centers. As the belt used is a round one and the pulleys are comparatively large in cross section it is not necessary that they be perfectly parallel, which makes possible the use of this simple system. Obviously this arrangement could not be used with a flat belt for the reason that immediately the adjustment was changed the pulley faces would lose their parallelism.

By eliminating the belt and still retaining the fan, a number of manufacturers have attempted to further simplify their products. Lozier practice, illustrated in Fig. 6, embraces the use of a vertical shaft, driven from the timing gear train, enclosed in a housing which also serves as a support for the fan. As already has been pointed

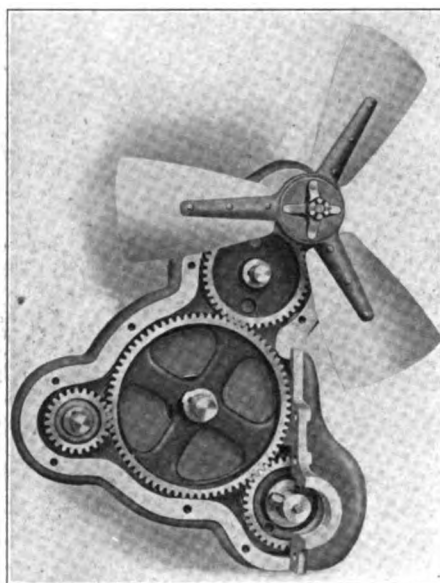


FIG. 7--WINTON GEAR DRIVING

out, it is necessary that when the motor is started there be some slippage between the driving and driven members of the fan in order to prevent breakage of the fan belt, or in this case, fracture of the shaft or injury to the gears by which the fan is driven. This has been done in Lozier construction by interposing a miniature friction clutch between the driving and driven members. The clutch is automatic in action and is so adjusted that when an unusual strain is placed on the bevel gears that drive the fan, it slips, but when the fan has attained to normal speed and the drive is steady, no slippage occurs.

Fig. 7 shows the method used in driving the Winton fan in detail. As may be seen, the fan is driven directly from the timing gear train by means of an additional pair of spiral gears. The clutch mechanism, by means of which a certain amount of slippage is allowed for, is plainly visible, and operates much after the manner of the ordinary multiple disk clutch, except that there are but two disks or plates. One of the plates is attached to the driving gear

and the other is formed integral with the fan. They are held in contact by the spider-like spring, which in turn is held at any desired tension by the castellated nut and cotter pin. Adjustment is quite simple and merely requires that the nut which holds the spring be tightened or loosened, as the case may be.

As varied as are the methods of mounting and driving cooling fans, there still is room for considerable improvement, and not the least of it may well be in the shape and number of the blades and their pitch. With the advent of the silent types of engines, redesigning of the cooling fan becomes more than ever a necessity, for the reason that there are remarkably few fans in use today that are really silent in operation. Of course, it is to be expected that a fan rotating at 1,500 to 2,000 revolutions a minute shall emit a certain amount of noise, but the amount of noise that the average fan really does produce is out of all proportion to the work done.

It is to obtaining the proper pitch of the blades that the greatest amount of attention should be paid. Once this factor is established it will be found that the number of blades can be reduced, which in turn will reduce the production cost and the noise. The shape of the blades also should undergo change if efficiency and silence of operation are to be gained. Incidentally, the outer band which serves to assist in holding the blades of some fans in place might well be omitted, for it serves merely as a baffle plate and causes the blades to churn the air rather than to throw it out clearly and quickly.

"Extras" Cause Taxicab Strike in London.

Temporarily London is practically without taxicabs. On Thursday last, 2d inst., a general strike of taxicab drivers was declared and 6,000 of the 7,000 regularly employed chauffeurs quit work; they have refused to return until ordered to do so by their union. The deduction by a taxicab owner of six cents from the wages of one of his drivers is said to be the direct cause of the walk-out, though trouble has been brewing for some time regarding the disposition of "extras" charged for carrying extra passengers and luggage. The men claim that such "extras" are perquisites and have refused to turn them in to their employers, who state that without them their margin of profit is so low that they cannot do business. Recently "spotters" were employed and the first driver who was detected in receiving an "extra" and not turning it in to his employers was suspended. Following his suspension the other drivers walked out in sympathy. Due to the efficiency of the underground railways and bus lines, the shortage of taxicabs has caused little discomfort and public sentiment is said to be almost unanimously against the striking drivers because of the reckless way in which the cabs have been handled in the past.

THE "CONQUERING HEROES" RETURN

**Home-coming of Victorious Maxwell Team
Made Memorable—Gold Coin, Watches
and Medals Dispensed.**

Although corporations are supposed to have no souls and though the United States Motor Co. quite naturally made the most of the victory of the Maxwell cars in the Glidden tour, that big corporation did not forget the men who made the victory possible. When the men returned to New York from Jacksonville they were met at the pier by a

driver a chamois bag containing \$100 in gold, which was separate and apart from the cash prizes they won in the tour.

Watches were given to Harry E. Walls, of Philadelphia; E. G. Gager, of Pittsburg, and Thomas Costello, of New York, the drivers of the Maxwell team, and to M. C. Reeves, the contest manager of the company, who had the team in charge, while to the mechanics on the cars and to the company's representatives who were on the tour were awarded gold medal watch charms properly engraved. The latter included Elery Wright, O. Riley, D. O. Fair, Warren Merman, Walter Stone, W. McK. White, Berry Rockwell and M. H. Newton.

baud (Marion); time 1:23.50; fifth, Mulhall (Abbott-Detroit), time 1:26.20.

Five miles, Class C—Won by Mulhall (Abbott-Detroit); second, Thebaud (Marion). Time, 7:40.

Ten miles, free-for-all—Won by F. Monroe (Mercer); second, Costello (Maxwell); third, Thebaud (Marion). Time, 13:10.50.

\$50,000 Purse for Indianapolis Race.

Apparently the 500 miles International Sweepstakes on the Indianapolis Speedway is to be an annual affair after all. Following a mail vote by manufacturers throughout the country, which was discussed at the last directors' meeting of the Speed-



UNITED STATES MOTOR CO.'S GATHERING TO WELCOME THE VICTORIOUS MAXWELL TEAM

brass band and an escort of Maxwell forces and, seated in state in touring cars, they were paraded from the pier to the United States Motor Co.'s headquarters at 61st street and Broadway, where they received the first fruits of their victory in the form of gold stop-watches and gold coin.

Upon reaching headquarters the drivers and all those involved in the success of the tour were taken to the executive offices, which include a two-story amphitheater on the top of the big United States Motor Co. building, and in which the entire office force turned out to welcome the "conquering heroes."

Benjamin Briscoe, president of the company, made the presentation address, giving each driver of the Glidden tour team, and also to the driver of Governor Hoke Smith's perfect-score car that won the Anderson trophy, a gold Tiffany stop-watch on behalf of the company; and, in addition, as a personal recognition, giving to each

The company also has sent a special gold medal souvenir to Miss Birdie Marks, who was the only woman driver on the tour, and who finished with a perfect score in her Columbia car.

Unsanctioned Meet at White Plains.

Despite the fact that sanction had been refused because of the perils of half-mile tracks, the meet on the White Plains (N. Y.) course was run off on Election Day, 7th inst., and did not lack men who cared naught for their necks or for the suspension that will be meted out. The sport was passably interesting. The summary:

Ten miles, Class C—Won by Thomas Costello (Maxwell); second, P. G. Thebaud, Jr. (Marion); third, Carlisle Mulhall (Abbott-Detroit). Time, 13:50.40.

One mile speed trials for track record—Won by Belzhover (Mercer), time 1:19; second, Munroe (Mercer), time 1:21; third, Costello (Maxwell), time 1:22; fourth, The-

way management, it has been decided to hold the second 500-miles race under very nearly the same conditions as was the first, on May 30th next. When Ray Harroun won the race with his Marmon last Decoration Day the purse was \$25,000, the richest ever competed for up to that time; but for the next race it is to be double that amount. The purse will be divided into twelve prizes, as follows: First, \$20,000; second, \$10,000; third, \$5,000; fourth, \$3,000; fifth, \$2,500; sixth, \$2,000; seventh, \$1,500; eighth, \$1,400; ninth, \$1,300; tenth, \$1,200; eleventh, \$1,100; twelfth, \$1,000. For the 1911 race there were only 10 prizes. The 1912 race will be a class E event open to cars of under 600 cubic inches piston displacement and of a minimum weight of 2,000 pounds; as was the case for the first race, they must be capable of at least 75 miles an hour to be eligible. The better to safeguard contestants, the field of starters has been limited to 30.

NOVEL BUS FOR CHICAGO COMPANY

Has Two Doors and Will Be Managed by One Man—Electric Heaters and Fans for Passengers' Comfort.

Chicago, reveling in the patronage of its first motor bus line, likewise has the distinction of testing the first of a new type of vehicle. For public service purposes under the peculiar operating conditions which govern in large American cities this type is thought to be superior to all others, particularly to those which have been developed in accordance with the regulations of foreign cities. The new Chicago bus system, as was disclosed some weeks ago, is being inaugurated by the Chicago Motor Transportation Co., a concern which is

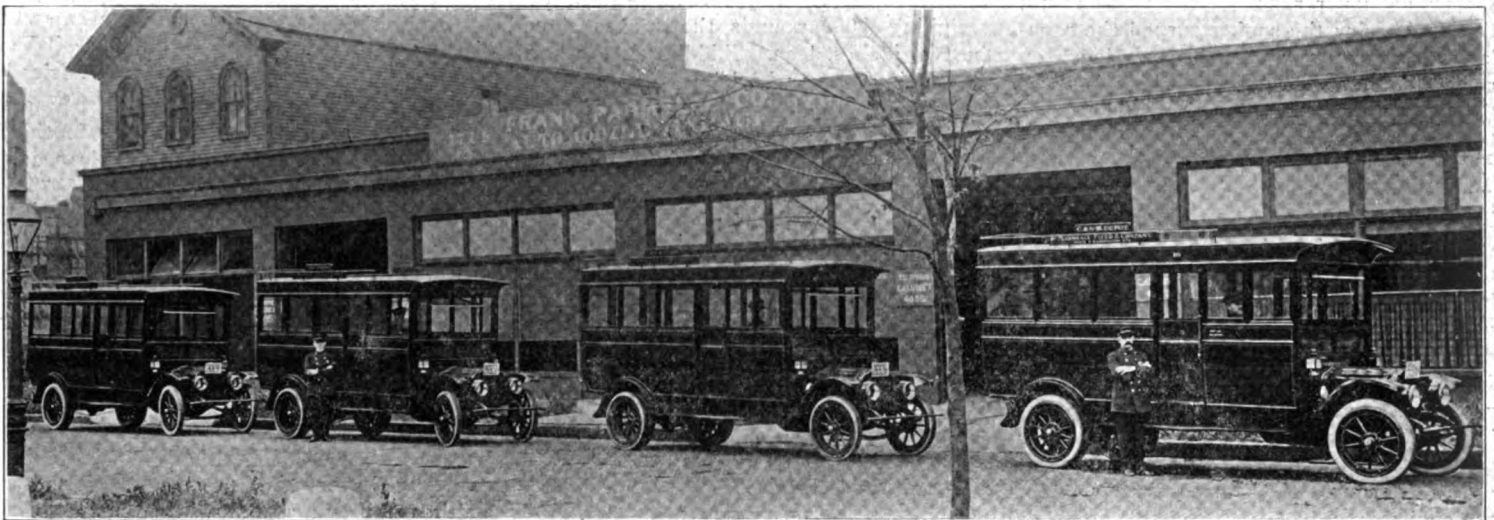
are in mode of propulsion. The seats are richly upholstered in grain leather, the interiors are lighted by electricity and electric fans are provided for ventilation in summer. For winter use a heating system has been installed in which both the jacket water from the engine and exhaust gas are employed. The bodies have been built by H. McFarlane & Co., of Chicago, and are fitted on the regular White one and one-half ton chassis.

The initial equipment of four buses, which is to be increased by 12 more which already have been ordered, is being operated between the Chicago and Northwestern passenger station, at Madison and State street, and the State street retail district. The running time for one round trip is 35 minutes and the fare 10 cents per passenger, as against 50 cents charged by the operators of the old busses. The four vehicles in use are able to transport with

FINE POINTS OF WHEEL BINDING

Schwartz Discloses Some Little Known Considerations—Wherein Automobile and Carriage Wheels Differ.

It is a curious fact that while other points of automobile construction have enjoyed thorough study and discussion at the hands of manufacturers and motorists alike, the wheels for the most part have been neglected. Bad wheels, as a rule, have been distinguished from good wheels only when they broke down, while opportunities to improve wheel manufacture have been oddly neglected, save by the restricted and often secretive cult of the wheel-makers themselves. It is significant, however, that of late the subject of motor-car wheels has



THE CHICAGO MOTOR TRANSPORTATION CO.'S FLEET OF WHITE PUBLIC SERVICE BUSES

heavily reinforced financially, and which is under control of experienced interests which long have been familiar with Chicago traffic through participation in the affairs of the Parmelee Transfer Co.

In developing a new type of bus body for use in the congested loop district of the Windy City two essential requirements have been kept in mind. First, the need of rendering the vehicle thoroughly accessible from the curb, and second, the economy of rendering it operable with one man. In order to give free entrance and egress two doors are used, one in the rear and one on the right side. The latter is placed well forward, however, whereby it is made to serve as the sole entrance to the vehicle, and hence to serve the purposes of the pay-as-you-enter plan. The cars, which are illustrated in the accompanying picture, will accommodate 18 passengers in addition to the driver, and cover the same route as the old two-horse buses which have been in operation since the early '70's.

In interior arrangement they are as far in advance of the old equipment as they

more comfort and greater despatch the traffic formerly handled by eight horsed buses and five "carryettes," and with the expected increase in equipment, enabling better headway to be made, it is anticipated that the earnings of the new enterprise will increase proportionately.

Hoosier Dealers Seek to Curb Evils.

In its efforts to mitigate the evils of the local trade—which, however, are by no means confined to Indiana—the Indianapolis Automobile Trade Association last week legislated against at least two of them. It passed resolutions decreeing that hereafter before being acceded to all requests for the free use of cars for charitable purposes or for the use of "distinguished visitors," etc., first must be sanctioned by the association, and that all applications for money contributions and for advertisements in programs or other indiscriminate publications not connected with the automobile business be referred to the secretary of the association, who will select the worthy applications from the unworthy ones.

been receiving more general attention, and it is equally significant of the advanced thought which prevails in the more highly developed portions of the industry that in not a few instances wheel builders of long standing have proved willing to come to the rescue with helpful information.

Thus at the August meeting of the Philadelphia branch of the Society of Automobile Engineers Charles L. Schwartz, of the Schwartz Wheel Co., of Philadelphia, presented a paper on artillery wheels, in which several of the more salient points of a well-built wheel were emphasized.

"To make good artillery wheels it is just as important to use thoroughly dried wood as it is to use good quality," he said. "The least shrinkage will cause the wheels to become loose. For pleasure cars the wheels are generally made of hickory. There is a vast difference of quality in all wood used for wheels.

"Carriage and wagon wheels are graded according to quality of wood used; the price of the best is about four times that of the lower quality. The hubs and spokes

on these wheels are of uniform dimensions for each size. When the spokes are turned they are divided into different grades. The best grade is all white and heavy wood, and the annual layer has to run across the spoke. Those with the annual layer running from front to back of spoke are termed bastard.

"On automobile wheels these methods are not followed. Most automobile manufacturers have their special design, which the spokes have to be turned to suit. If by chance the spokes are the same, there is likely to be a difference in the hub diameters. Consequently all spokes not considered good are thrown out and are an entire loss.

"On account of it being necessary to fill out the circle of the hub with the width of 10 or 12 spokes, large pieces of wood are required to make them. The spokes are generally turned regardless of which way the annual layer runs. If the wood is not thoroughly dry the spokes turned the regular way are more apt to become loose on account of more shrinkage, which is three times as much with the circumference of the annual layer as against the diameter of the wood. Only straight fiber and heavy spokes should be used, regardless of color. The red wood is equally as strong as the white. The spokes should fit as well where they meet at the hub, fitting tight to the hub barrel, as at the shoulder inside of the wood rim. The tenon should be half the diameter of the spoke and should be the full length of the depth of the rim, and rest on the metal rim or tire. Where this is not the case the shoulder of the spoke resting on the wood rim only, at the weakest point, causes the rim to shatter under the spoke.

"The annual layer of the wood rim properly bent should run with the depth of the rim, although on account of the width of rims many are bent bastard and used. If they are not thoroughly dry the larger percentage of shrinkage will cause them to split at the tenon holes, principally if the spoke should be drier than the rim or if in the same condition the annular layer of the spoke tenon runs the proper way across the spoke. If dished wheels are used the points of the axles should be turned under at least the same number of degrees, allowing the spoke to be in vertical position below the hub.

"Where spokes are bolted to brake drums the flat fitting to the drum should be the widest part of the spoke. If the spokes are rounded toward the drum, space hard to clean out will be left. Spokes tapered in width from the rim towards the hub make the best-appearing wheels. When it is required the spokes can be turned with tapering depth and width in opposite directions with one operation. In conformity with higher power and speed most automobile manufacturers are now using wheels with deeper spokes. The severest strain on wheels is sidewise from skidding.

"With the use of new machines wheel-makers now produce better shape, finish and quality of wheels than heretofore."

In the discussion which followed the reading of the paper it was brought out that the effects of overloading a wheel first are indicated in the loosening of the spoke at the felloe, and, furthermore, that owing to the variation in the quality of wood it is almost impossible to calculate with any degree of accuracy the exact load which a wheel will bear with safety. Urged to state a definite figure, however, Schwartz stated that with first-growth hickory the factor of 1,000 pounds per square inch of spoke load could be carried with safety, though sometimes the figure would rise as high as 5,000 pounds. As only half the spokes carry the load at any one time, this really amounts to 2,000 pounds per square inch.

"The main thing in making automobile wheels," he added, "is the depth of the spokes; for instance, for high-speed cars weighing 4,000 pounds the spokes should be two inches deep. Skidding is the hardest strain on any wheel."

As almost invariably happens where wheels are under discussion, the advantages of wire construction were brought into question at the engineers' meeting. The prevalence of this type abroad was argued to be due to the scarcity of good wood, and, on the other hand, to be the result of careful tests which have shown it to be the superior of the wood wheel in the matter of strength. In concluding the discussion one speaker expressed what is probably the consensus of opinion in the United States at the present time, when he said: "The principal arguments against the wire wheel are looks and cleaning."

Labor Unions Complicate Motor Hauling.

Apparently justifying the apprehension that unionism is destined to have a decided influence on motor truck operation, one prospective purchaser has been discovered who has been forced to "ask permission" of his employees' union before adopting a certain class of equipment which he desires to use. The situation was disclosed by a well-known truck manufacturer in the course of a rambling discussion which concluded the regular monthly meeting of the metropolitan section of the Society of Automobile engineers at the society's New York headquarters last Thursday evening.

The customer whose purchase has been delayed by what is thought to be an unprecedented situation is a large wholesale and retail coal merchant, and already a considerable user of motor trucks. The only motor vehicles employed hitherto, however, have been of large capacity and have been operated exclusively with crews consisting of a driver and helper. For certain classes of duty it is now desired to introduce trucks of smaller capacity, and with that object in view a careful study of conditions affecting the cost has been made with the result that a very small margin of

advantage for the motor, as compared with the horse-drawn conveyance, was found to exist.

As a matter of fact, it was discovered that the probable working profit of the intended equipment hinged about the wages of the helper. If the trucks could be sent out with only the driver it would pay to operate them. If not, the additional cost of the helper would render the cost of operation greater with motor trucks than with horses.

This altered the situation inasmuch as the union has placed a limit on the size of load which one man is permitted to handle. So the question has been put to the powers that be as to whether, under the specially advantageous conditions of motor haulage, it will sanction the use of only one man per truck in the present instance. Pending the decision, of course, the manufacturer who related the incident is very much in doubt as to whether or not he will be able to make the sale.

American Cars Gaining in South Africa.

"It is gratifying to see that at last American-made motor cars are getting a foothold in this market," reports the American consul at Cape Town, South Africa. "The imports not only increased 94 per cent. as compared with the previous year, but the percentage increased from 9.6 per cent. in 1909 to 11.2 per cent. in 1910. Some of the American manufacturers of automobiles have established good selling connections in this country with energetic firms which are not afraid to advertise the merits of the American cars in competition with other makes. The tendency in South Africa is to buy lower-priced cars than formerly, although they may not wear so long. Other advantages outweigh that of superior durability."

Indianapolis Tradesmen Form a Club.

The Hoosier Motor Club, which has been in process of formation in Indianapolis for several weeks, finally has completed its organization by electing the following officers: Charles A. Bookwalter, president; C. L. Diers, H. H. Rice and C. A. Kenyon, vice-presidents; P. P. Willis, secretary, and Joseph Selvage, treasurer. Will H. Brown, chairman; C. A. Bookwalter and C. L. Diers will compose the executive committee. The club is composed almost wholly of Indianapolis automobile tradespeople and will maintain centrally located rooms in the Claypool Hotel. President Bookwalter is a former mayor of Indianapolis and until a few months ago was the head of the Mais Motor Truck Co.

Canadian Northwest Has Many Cars.

Despite the fact that Saskatchewan is not popularly supposed to be much of a stamping ground for automobiles, there are upwards of 2,000 cars registered in that rather remote Canadian province. A year ago there were but 652.

Influence of Details; Room for Improvement

If it had been customary to make road testing and repair shop experience a standard qualification for the automobile draughtsman, it is likely that the breed of modern cars would have improved far more rapidly than has been the case. As it is, many of the faults which are discoverable in the average machine may be charged either to ignorance of governing conditions or to carelessness in the arrangement of small parts, such parts as ordinarily are abandoned to the tender mercies of his subordinates by the designer-in-chief. In enlarging upon the point, L. A. Legros, the well known English engineer, has found sufficient material to form the subject of a lengthy address, which was delivered before the Institution of Automobile Engineers on the 11th ult. His discussion on "The Influence of Detail on the Development of the Automobile," mounts to a careful criticism of the minor faults of present construction, for as he observes:

"To examine this subject systematically, we shall find that most detail has its origin in design, but that the design is frequently marred in execution, and that the executed work is subjected to abuse by the user and to wear by the conditions under which it works, and it is from the latter end of the story that the cycle of design must recommence, since it must take account of the possibilities involved in use and abuse, and of the certainties involved by wear and tear.

"To take the first example that comes to hand, that of the steering gear, it is well known that the ordinary Ackermann axle affords a fair compromise for obtaining the intersection of the axis of the front wheels at a point on the axis of the back wheels.

"This gear as usually made is fitted with a number of pin points, all of which are liable to wear, and as wear proceeds, the two front wheels of the vehicle when it is traveling in an approximately straight line, which, after all, represents by far the greater portion of the distance it runs, will, whether the steering bar be in front of or behind the front axle, take up positions such that the horizontal diameters of the steering wheels would intersect behind the car. After a certain stage of wear has taken place, it is thought necessary to put the wheels in gauge again, and most mechanics, if left to themselves, would set the wheels properly and truly parallel. At this point we should ask ourselves whether this is the right thing to do; whether making things 'exactly right' is after all the proper course to adopt, and whether the present

example is not an illustration of a distinct advantage to be gained by making adjustments incorrectly in the first instance. If the limit for error in parallelism, determined by experience based on the wear of tires, is half a degree (or, in the language of the shops, the wheels should not be more than one quarter of an inch out of parallel in a length equal to their diameter), and if, when this error has been reached, it is time to put them right, then why not set them half a degree (or a quarter of an inch) inwards to start with, so that they will start with a negative error no greater than the positive error permissible, and thus double the life will be given to the steering before it becomes necessary to take it up, assuming the want of parallelism is the only reason for the taking up.

"Take another case: the bearings of an engine are made and fitted so that there is no shake or knock when the engine is turned round without the ordinary amount of lubricant. Such an engine will run very stiffly until its bearings have become sufficiently worn to admit of the proper thickness of oil film for supporting the load. Under present conditions, with the limit gauges and more accurate machine tools available, some of these factors are being incorporated in the design, as recorded by the drawings, but there are many factors which still escape and are not recorded, and it is left to the shops to do as their unwritten experience suggests to them may be right. The tendency in the bigger factories is to diminish the amount of responsibility left to the individual worker in respect to the employment of what, for want of a better term, may be called 'shop knowledge,' and the reason may be found in the fact that whereas in the earlier days of engineering the same man both constructed and repaired, now, under modern conditions of output, the man who constructs is of a quite different class from the one who repairs, and the two classes are rapidly becoming almost out of touch with each other. Consequently that form of shop knowledge which was of such use to the mechanic of some years ago and which enabled him to put through work on the imperfect instructions of not very definite drawings, must today be replaced by positive information supplied by the designer and embodied in the detail drawings, figured with limiting dimensions and supplemented by specifications.

"In the broad and general consideration of detail, the first and most important point to be dealt with is that of standardization, and, consequently, interchangeability. In

spite of all the efforts of Whitworth and others creating standards of size and form for screw threads and for other details, there are still numbers of manufacturers in the country who work almost as though such standards had never existed. That is to say, there are firms who will make 1/2-in. bolts 1/64-in. or 1/32-in. large because the user will get a stronger bolt, although he is buying the same size. The fit of screws between proper limits is quite as important as the accuracy of pitch and of shape of thread. A loosely fitting screw in machinery subjected to so much vibration as is common with automobile vehicles will ultimately cause waste of time and trouble to the user, if not damage to other parts of the machine, whereas the too tightly fitting screw has its obvious disadvantages.

"Standardization is looked after by committees who formulate very excellent rules which should be followed by the manufacturer, but in many cases there is a want of uniformity in the resulting product which calls for better inspection at the start of operations and for the checking of the gauges to which the work is made. The admirable work now being done by the National Physical Laboratory in connection with all classes of standardization cannot be overrated; but the importance of the independent checking of commercial standards by such an impartial central authority is not so fully appreciated by manufacturers as it might be.

"Again, to take an example, the ordinary pneumatic tire is supposed to be interchangeable, that is to say, the same rims will do for any of the tires made by the leading makers. The same pump connection serves for pumping up the inner tube, but it will be found that the same uniformity does not apply to the other details which go to make up the complete tire on its rim. Security bolts, for instance, have various threads, causing the expenditure of much bad language on the road. The diameters of covers are not always in agreement with the rims within the usual limits, with the result that a cover may prove to be tight on the rim and may give considerable trouble in getting it into place. The checking of any of these dimensions is beyond the ordinary purchaser or consumer besides being outside his province, and the trouble caused by too great deviation from the standard dimensions is only discovered at a time when it gives great inconvenience. The question again is one of the various limiting dimensions of the rim and of the limits permissible in the cover under normal conditions.

"In the wheels of pleasure vehicles ball bearings have been used for some years with increasing success, but their application was delayed through failures, in some cases due to overloading, and in many others through imperfect provision being made in the casing of the bearing against the entry of water and mud. In fact a considerable period of time elapsed before the various causes which contributed to the failure of ball bearings in road wheels were appreciated at their proper values. . . .

This matter of wheel bearings is essentially one of design, because the ball bearing when worn is, in general, beyond repair, so that the question of prolongation of the life of the ball bearings is one which can only be referred back through the repair departments, who effect the renewal, to the designer. The presence of moisture, which has resulted in the failure of ball bearings in the road wheels, has also been found to affect those ball bearings which have been fitted to the crankshafts of some engines, and it has been found that a small amount of water in the lubricating oil will cause a sufficient pitting of the surface of the ball races and of the balls to result in premature failure.

"In the engine many improvements in detail have been made, resulting in an enormous advance in respect to silence, speed of revolution, and power for piston area. Apart from such questions as multiplication of the number of cylinders, these improvements, however, have been confined to reduction in the weights of reciprocating parts, alteration of the arrangement and types of valves, modification of the shape of cams and of the size of the cam rollers, care in the selection of the materials and teeth of the gears used for driving the camshafts, the replacement of low tension by high tension magneto ignition, and in general by improvements of detail.

"It is, however, in the carburetter that the main problem of advance in the internal combustion engine appears at present to lie. Carburetters have been made giving over fifty ton miles per gallon on ordinary touring cars when running at speeds up to forty miles per hour, and there appears to be no reason why such results should not be easily and regularly obtainable when the carburetter has attained a development as far advanced as that of the high tension magneto. At present the tuning up of the carburetter is still frequently effected by the expensive method of running the car on the road, involving a considerable expenditure of the time of a skilled tester, the wear and tear of the whole machinery of the car, and the wear and tear of the tires, which, even if only old tires are used, must be added to the other costs. It is true that on the road the conditions under which the carburetter is working are quite different from those of the testing bench. The forward movement of the car may give increased air pressure at the intake

of the carburetter; the vibration of the car may appreciably alter the mean level in the float chamber and the amount of petrol which flows through the nipple. Usually these matters are adjusted by the tester by varying the size of the orifice in the nipple, but from an examination of the conditions which lead to the necessity for this adjustment, it would appear that frequently it is the level in the petrol chamber which requires adjusting quite as much as does the size of the orifice, and in but few carburetters is any provision made whereby the tester can set the level of the petrol to the desired height otherwise than by filing down the nipple or adding solder to the float. . . .

"In the clutch there is less complaint than was formerly common, in fact the peculiarities of leather, cone and disk clutches have become sufficiently well understood by designers to render this detail one of those which now cause but little difficulty; in the case of metal disk clutches, the difficulties first met with in their use were mainly due to the imperfect knowledge on the part of the user of the proper conditions under which to work them, and, in this case, it is the improvement in the mechanical education of the user that has permitted their continued employment.

"In the last few years the question of the reduction of the noise on motor vehicles has been almost entirely dealt with in the engine and gear box, apart from the change from chain drives to live axles. In the gear box noise was found to be produced by errors in the shape of gear teeth, which caused irregularity in the velocity of the driven shaft accompanied by separation of the driving surfaces at speeds beyond a certain minimum. The improvements in gears have entirely been improvements in detail; the involute form of tooth has been retained and the angle of inclination to the tangent of the path of the point of contact has seldom been varied; on the other hand, not only have the cutters been made of greater accuracy than those employed for the construction of other classes of such as those for developing gears by hobbing, which of themselves produce an approximation to the true form of tooth much more accurate than was obtainable by older methods. Again, the distortion of the gear wheels which may occur in cementing and in case-hardening has been more thoroughly appreciated, and precautions have been taken by manufacturers which have resulted in a much smaller error in the finished product. In the back axle a source of noise has remained in the bevel gears, which even though made on developing machines, are liable to the introduction of more error than is the case with spur gears. . . .

"In the ordinary touring car there is still one detail which looks as though it should be altered before long, and that is the want of alignment between the propeller-shafts and the shafts in the gear box when the

car is under its normal load. It would appear that a simple modification should be possible by which the whole length of the shaft would be in alignment from the front of the engine to the center of the back axle when under normal load. At present the chief difficulty appears to lie in the lubrication arrangement for the engine. Now the angle of inclination of the shafting, if it be made lineable, is but small, and is in fact much less than that of any of the gradients up which the engine is required to work at full load. If the uniform lubrication of the engine were assured for a larger range of angle, covering the total inclination of the engine to the frame added to that of the maximum gradient to be ascended, this difficulty would disappear. . . .

"In the case of public service vehicles, the improvements made in detail are immediately noticeable on the London streets, where some of the earliest taxicabs are still running side by side with the latest types. In motor omnibuses the contrast is still more marked between the old pattern with the chain gear and the new pattern with the bevel drive, and here we have a paradox, for some of the more silent omnibuses, though they have no chains in the transmission from the gear box to the back axle, yet have a greater number of chains running at much higher speeds continuously within the gear box itself. The chain itself, therefore, should not be held to blame for the noise, but the cause should be attributed to the faulty method of application of the chain. . . .

"Experience has now determined the amount which should be provided for wear in the brakes, brake surfaces have been increased, and provision has been made for an ample range of adjustment in the brake gear. In the earlier designs of automobiles, the designer seldom compared the new or maximum form of the brake shoes or drums with the worn-out or minimum thickness, with the result that frequently it was necessary, when adjusting the brakes, to cut the rods for length and re-thread the ends, or to set the levers in order that the necessary adjustment could be effected. . . .

"Accessibility is a question which has had a great influence on the design of the automobile, and in some instances may have determined the type which has set the fashion, and fashion in the automobile vehicle plays a more important part than it does in any other class of machinery within my experience. The necessity for frequent access to the engine, to its ignition gear, to its carburetter, and to its valves, has ensured the placing of the engine in the front of the car, where it could be quickly and most easily reached with the minimum of disturbance to the main portions of the vehicle. This fashion in position of the engine is likely to die very hard, so accustomed have we become to giving up the front of the car for the ac-

commodation of the propelling power.

"Accessibility may be divided into two main heads: First, accessibility to those parts which frequently require adjustment requiring no special skill, such as the adjustment of the brakes, of the strength of the clutch spring, of the spark of the ignition devices, and the like, most of which have already been dealt with by the designer in arranging them; and, second, accessibility to details requiring skilled attention. In the latter class come the overhauls of engines, gear boxes, axles, etc., and the influence of commercial and public service vehicles on this branch of the subject is only now commencing to make itself felt. The importance of being able to remove parts of a car, unit by unit—that is, engine, gear box, back axle, etc.—has now become recognized by those responsible for the vehicles of public services, such as those of the motor omnibus and cab companies, since the conditions of working such services are much more closely allied to those of the railway and the tramway than are the conditions of the private car or the commercial vehicle. The easy removal of these units complete, and their interchangeability with other similar units on the same class of vehicle, is a large factor in economically and continuously keeping a fleet of public service vehicles upon the road.

"Apart from the two broad questions just mentioned, a third and very important factor is that of accessibility to the various parts by those tools used in making the adjustments. . . . If these features were considered in design, bolts would often be substituted for studs, long bosses would be cast on parts to enable the nuts or bolt heads to be reached, channels would be milled across faces into which bolt heads could fit to prevent them from turning, and such parts as guardings and covers would be so made that their detachment would be dependent on very few devices, and those of kinds easily secured and readily locked."

"Regarding fuel as a storage of energy, we have in petrol nearly 50 per cent. more energy per unit weight than is stored in coal, and, moreover, we have it in a more convenient form, owing to the advantage which a liquid possesses over a solid. Among so-called improvements may be cited solidified petrol, but it is difficult to imagine what possible advantage a solid which is troublesome to handle can have over a liquid which can be readily led from its reservoir to its destination through a pipe by gravity, or by pressure if gravity will not suffice.

"In the desire to reduce the weight of the transmission gear the diameter of shafts in the early vehicles was reduced to the minimum, and, in order to obtain the requisite area of bearing for carrying the load the bearings in the gear box were of necessity made long. The spring of the shafts under the heavy loads to which they were sub-

jected resulted in bending to such an extent as to reduce the thickness of the oil film locally below that necessary for efficient lubrication, with the result that in many of these earlier cars difficulties arose in maintaining the bearings in efficient order. This difficulty has been largely overcome by the use of the ball bearing, which, as it takes up less length of the shaft, reduces the effective span between the supports and diminishes the spring. But this is not the only advantage given by the ball bearing; still more important is the fact that it is capable of working satisfactorily with a greater error of alignment than is possible with a plain bearing. In fact, in the gear box ball bearings generally give less trouble than on other portions of the car.

"Although the ball bearing has such marked advantages when treated in a suitable manner, yet, under conditions less favorable, such as those of the road wheels, where a bearing may be called upon to stand excessive and obliquely applied loads, failure is much more easily produced, especially if accelerated by the penetration of water, even without dirt, into the bearings. The effect of water in destroying the smoothness of the surface leads to rapid disintegration, and once the ball bearing has begun to fail, either by the breakage of the balls or of the race, its end occurs more rapidly than is the case with the plain bearing.

"The improvements in the efficiency of motors have been almost inseparably linked with improvements in carburetters. Nevertheless, improvements in the motor itself have to no small degree contributed to the advance in the amount of power obtainable per unit of weight of motor, and in the efficiency of the motor itself is a thermodynamic machine. The consumption of fuel per brake horsepower hour in the petrol motor has now been reduced to 0.63 pound. Allied to the question of efficiency is the question of obtaining small commercial motors capable of working with a less highly inflammable fuel, such as ordinary paraffin oil."

Four New "Valveless" Engines Appear.

That not all foreign manufacturers are willing to dissipate part of their profits in producing the Knight sleeve valve engine under royalty, or believe that in that type of engine is perfection attained, is evidenced by the fact that no less than four new "valveless" engines of different types have made their appearance abroad within a comparatively short time. Scotland, France, Italy and Switzerland are represented in the new products, and Germany as well is preparing to enter the ring with still another type. Two of the new engines, those produced by Darracq & Co., of France, and the Itala factory in Italy, belong in the rotary valve class, the Darracq engine being built on the Henriod principle and the Itala engine being of a new construction peculiar to the Italian plant. In it a

single rotary valve serves for both the admission and exhaust of gases from each pair of cylinders. The other two, one from the works of Argyll, Ltd., Alexandria, Scotland, and the other from the Swiss plant of Brunau, Weidman & Co., follow the Knight idea in that they embody sleeve valves. In the Argyll engine a single sleeve is used and arranged concentrically with the cylinder, as are the Knight sleeves. Unlike the Knight sleeves, however, the single Argyll sleeve moves circumferentially a short distance each way in addition to moving upward and downward, so that each spot on the sleeve describes an ellipse during two revolutions of the crank-shaft. The Adlerwerke, the big Frankfort makers of automobiles and cycles, also are hinting at something new in valve development.

When Throttle Does Not Increase Power.

An engine's inability to show any difference in power when the throttle is half and is full open is an indication that improved running would probably result if the jet were enlarged. If this is done, says the Motor News, it may be necessary to provide means for introducing an extra supply of air into the induction pipe; otherwise the enlargement of the jet might be accompanied by a considerable increase in petrol consumption. It is erroneous to suppose that gasoline consumption must appreciably increase when the jet is enlarged, or that a reduction in the jet leads to tangible results. A small jet and a constricted choke tube can supply a properly proportioned mixture as well as a large jet and generous air orifice; but it is calculated to reduce the maximum amount of mixture needed for fast going, particularly on inclines. We once improved the range of flexibility of a car we possessed by slightly increasing the jet orifice and by fitting a Bowden extra air valve. This we did without any noticeable increase in gasoline consumption. Theoretically it probably was greater, but, if so, only to a negligible degree.

Why Too Many Cells Cause Damage.

While it generally is known that the spark which can be obtained from a coil with eight dry cells is better than one which can be obtained with a battery of six cells, changes of this kind should not be made indiscriminately. Most coils are made to be operated on six dry cells, and when an eight-cell is used the platinum points burn away rapidly. Similarly, other coils that are designed to be used on a four-cell circuit never should be connected to a six-cell battery for the same reason. As a general rule, coils which are intended to be used with a four-cell battery will give the best results with a battery of that size, and if they do not it is likely that the trouble is with the battery and not with the coil. The same rule holds good in the case of coils which are intended for six and eight cells, respectively.

CANNOT LIMIT TOURIST MONEY

Unusual Suit Decided Against Railroad Company—Must Make Good Tourist's Funds Lost in Wreck.

That a tourist or intending tourist may carry as much as \$1,800 without incurring the charge of being unreasonable or careless is the opinion of a majority of the justices of the Appellate Division of the New York Supreme Court. The case which last week called forth this divided opinion was that of Joseph A. Knieriem vs. New York Central Railroad. The evidence presented in the trial court showed that Knieriem had sold his restaurant business in Jersey City for \$8,000 and had drawn \$1,800 from the bank and gone to Amenia, N. Y., to meet his wife, previous to starting on a four months' automobile tour through the South. On the way back the train he was on met with an accident and in the confusion following the wreck the money and a large amount of jewelry belonging to his wife disappeared. The New York Central Railroad refused to make good the lost money, although it did settle for the lost jewelry and for the three broken ribs suffered by Mrs. Knieriem. When Knieriem sued the railroad the jury in a lower court rendered a verdict in his favor.

The railroad company having appealed from this decision, the case came before the Appellate Division, which, as stated, sustained the verdict by a majority opinion written by Justice Clark. In this opinion the justice declares that the jury's verdict of \$2,246 should be sustained, because it was for the jury to say whether \$1,800 was a proper amount for a couple to have who were starting on a four months' tour of the South, even though the long trip had not actually begun at the time the accident occurred.

Presiding Justice Ingraham, writing the dissenting opinion, in which Justice Mc-

Laughlin concurred, held that it was against the weight of the evidence for the jury to think that \$1,800 was a reasonable sum for the Knieriems to have, since they were taking only a short journey at the time.

The case is of unusual interest because of the custom of many tourists to carry considerable amounts of ready cash when starting on protracted trips through districts where they are unknown and unacquainted.

Motorphobe Too Slow on the Trigger.

Because he allowed his motorphobia to get the best of him, to the extent of drawing a pistol on a passing car, Sam Whither, a wealthy young Cleveland county (N. C.) farmer, lost his life last Sunday, the 29th ult. Facing the drawn weapon in Whither's hand, Lucius Randall, a business man of Gaffney, S. C., thought himself attacked by a lunatic and shot Whither twice, killing him instantly. The meeting took place on a public road near Charlotte, N. C., on which Whither was driving in a buggy. At the approach of Randall, the automobile hater got off his buggy and, with sundry insulting remarks about motorists in general and Randall in particular, drew his pistol and announced his intention of killing Randall then and there. Randall pleaded with him ineffectually and finally, drawing his own weapon, shot his opponent. Neither man knew the other by name or sight. Randall surrendered to the sheriff on his arrival in Charlotte.

Extent of Child's Negligence.

While contributory negligence always has been considered sufficient to prevent the victim of an accident from obtaining damages, the term has not been so generally extended as to cover the acts of small children. Usually it was taken for granted that such children could not act with the understanding and experience of adults. This idea, however, was upset by the Appellate Division of the New York Supreme Court, on Friday last, 20th inst., in the case of Mrs. Antonio Marius, of

New York City, whose eight-year old son Clarence had been run over by an automobile belonging to the Motor Delivery Co., also of New York, and who sued the latter company.

It was brought out in the trial before a jury in the Supreme Court, that the boy at the time of the accident was playing ball, and Judge Bijur instructed the jury in his charge that it was the duty of the plaintiff to show that the defendant was negligent and that the boy was free from "contributory negligence." The judge, however, failed to give the jury any instructions as to what constituted negligence or to define a rule by which the jurors could test the conduct of the boy in order to determine whether or not he was guilty of contributory negligence. They returned a verdict of \$5,000 for the plaintiff.

The defendants appealed from this decision, and the Appellate Division, in setting it aside, criticized the charge of Judge Bijur and stated that, although the court was right in telling the jury that the boy could not be held accountable as strictly as a grown person, he should have impressed upon the jury that the boy should have acted "as a reasonable and prudent boy of his age and understanding would have conducted himself under like circumstances." Failure to enlighten the jury in this respect resulted in the setting aside of the verdict.

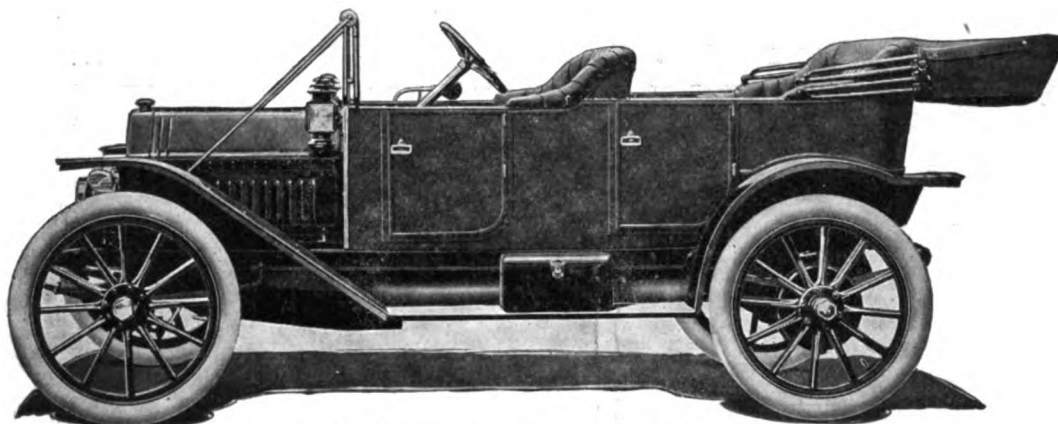
What Touring Brings to Hotel Tills.

What automobile touring means to the hotels in the summer resort regions, even those located off a main line of travel, is well instanced by the two hostleries amid the ruggedness of the White Mountains at Bretton Woods, N. H. When it closed its doors for the season the Mount Washington had recorded a total of 6,291 arrivals, of which 4,793, or 76 per cent., came to the hotel in 1,202 automobiles. The Mount Pleasant hotel registered 5,155 guests, 2,173, or 42 per cent., arriving in 502 motor cars of various brands.

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	(Completely Equipped)	
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5 Passenger Self-starting Touring Model

1911 Chicago Reliability Run

**Four Entries—Four Winners
Four Perfect Road Scores**

Once more the DREADNOUGHT MOLINE has swept its field of competitors aside and covered itself with glory—this time even more decisively than ever before—winning three out of the four Trophies offered in the Chicago Reliability just finished and standing second for the fourth—the Economy Cup.

Here is the result in a nutshell of the 1911 CHICAGO RELIABILITY RUN just ended, Friday, Nov. 3rd, passing through five States and covering nearly 1,400 miles in seven days' running.

Four Trophies were offered—a Touring Trophy—a Roadster Trophy—a Team Trophy for the best two cars of same make—and a Fuel Economy Trophy.

Four Moline were entered—two Touring Cars—two Roadsters. These four cars covered the entire run of 1,356 miles, plowing through 18 inches of snow and mud on the last day, yet finishing with perfect road scores. Think of that!

In addition two of them won the TEAM TROPHY—another won the Van SICKLEN ROADSTER CUP (won also by a Moline last year)—another tied with a competitor for the TOURING TROPHY, and one stood second for the FUEL ECONOMY CUP with a record of 17½ miles to the gallon of gasoline for the entire run.

In short, the Moline practically cleaned up everything worth while in the run. And here is the reason in six short words—its invincible

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WINNER FOUR CONSECUTIVE NATIONAL CONTESTS

Winner 1911 Chicago Reliability Run

Winner 1910 Chicago Reliability Run

Winner 1911 Annual Fuel Economy Run

Winner 1910 Annual Gilded Run Chicago Trophy

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DEALERS—Write for Our Special Proposition on "The Car That Always Wins."



996,745. Headlight. Robert A. Bell and James B. McKiel, Marshall, Tex., assignors of one-fourth to James Fink and one-fourth to Harry E. Reinheimer, Marshall, Tex. Filed Feb. 26, 1910. Serial No. 546,080.

1. In a device of the class described, a vehicle frame having a movable axle end; means for shifting the axle end; a lamp pivotally supported upon the frame; and a connection between the shifting means and the lamp, for turning the lamp; the connection being arranged to reciprocate longitudinally upon and transversely of said shifting means.

996,798. Packing Ring for Axle Box Bearings. Jakob Schmid-Roost, Oerlikon, near Zurich, Switzerland. Filed May 5, 1910. Serial No. 559,507.

1. In an axle box bearing, a metallic packing, comprising two parallel abutting rings, each consisting of a plurality of segments, the joints of the one ring being covered by the other ring; and an endless spring wound sinuously around the assembled segments and holding the latter together both in radial and axial direction; substantially as described.

996,800. Muffler. John O. Schmitt, Cleveland, Ohio. Filed Aug. 2, 1909. Serial No. 510,706.

1. In a muffler, in combination, a casing having one open end and closed at its other end by an integral fixed head, a removable head adapted to be secured to the casing at said open end, and a plurality of muffler tubes secured to and supported at one end by said removable head and provided at their respective opposite ends with perforations arranged in a manner to baffle the exhaust in its passage through the muffler.

996,831. Vehicle Wheel. Nestor Braibant, Brussels, Belgium. Filed Dec. 17, 1908. Serial No. 468,053.

1. A vehicle wheel comprising in combination with the hub, rigid spokes and rim therefor, of a plurality of flat leaf springs spaced apart from each other circumferentially on said rim, each spring comprising a central or base portion curved to conform to the curvature of said rim and lying flat thereon and rigidly secured thereto, and having its ends bent outwardly radially spirally inwardly toward each other in opposite directions, a tread portion located radially outwardly from the ends of said springs and from said rim and having radially inwardly projecting extensions spaced apart from each other and disposed abreast of the sides thereof and below said rim, adjustable anti-friction means on said rim engaging said extensions to prevent lateral movement of said tread portion with respect to said rim, and means non-rotatively secured in the ends of said springs for connecting said tread portion therewith.

996,835. Vehicle Wheel. William C. Cole, Locust Hill, Mo. Filed Apr. 25, 1910. Serial No. 557,462.

A vehicle wheel comprising a hollow hub formed with a plurality of radial cavities and having its periphery provided with a plurality of circumferentially disposed

slots each of which open into a respective cavity, a bridge connecting opposite sides of each cavity and provided with a circumferential slot in radial alignment with a circumferential slot in the periphery of the hub, a spoke passing through each slot in the periphery of the hub and the radially aligned slot in the bridge disposed within the cavity, a cross arm mounted on each spoke between the periphery of the hub and the bridge within the cavity, a spring surrounding each spoke and having one end in engagement with the upper side of said cross arm and the other end in engagement with the periphery of the hub, a second spring having one end in engagement with the lower side of said cross arm and its other end with the bridge connecting opposite walls of the cavity, and springs disposed between each end of said cross arm and the adjacent wall of the cavity.

996,838. Resilient Wheel. Alfred A. Curry, Bridgeport, Conn., assignor of one-half to Edwin B. Knowles and one-twentieth to Charles S. Canfield, Bridgeport, Conn. Filed Sept. 29, 1910. Serial No. 584,477.

1. A resilient wheel comprising a relatively fixed inner rim, a series of U-shaped springs alternately inverted resting thereon, an outer rim resting on the arches of alternate springs, side plates secured to the outer rim and pivoted dogs secured to the side plates, and means for holding said dogs yieldingly in engagement with the inner rim whereby oscillation of the outer rim is permitted when the springs yield.

996,945. Pressed Steel Wheel. Justice W. Sharick, Frankfort, Ind. Filed Apr. 21, 1910. Serial No. 556,844.

A wheel consisting of two metal plates spaced apart to define a chamber about the axis of the wheel, the plates being inclined toward each other from the axis of the

wheel toward the periphery thereof, the peripheries to the plate being bulged in opposite directions to bring their edges into abutment and to define a chamber in the wheel rim, communicating with the central chamber of the wheel; both plates, at spaced points adjacent the rim of the wheel, being struck inwardly to form terminally abutting lugs, and to form recesses in the outer faces of the plates, the lugs constituting the sole points of contact in the plates between the rim and the axis of the wheel; and retaining elements extended through the lugs, the retaining elements having heads located in the recesses between the planes of the outer faces of the plates.

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THE MOTOR WORLD

Vol. XXIX.

New York, U. S. A., Thursday, November 16, 1911.

No. 3

WANTS \$150,000 FOR INFRINGEMENT

Rose Files Chain of Suits Born of Lamp and Tag Bracket Patent—Many Jobbers Made Defendants.

Claiming cash damages in each case, the Rose Mfg. Co., of Philadelphia, Pa., is sweeping the country with a lengthening string of suits based on alleged infringement of the several patents covering the Neverout combination lamp and license tag bracket, and also infringement of the Neverout number plate bracket for attachment to automobile radiators. To date the suits which the Rose people have filed claim damages to the amount of \$150,000.

The most recent actions instituted are those against the Eberhardt Mfg. Co., the Pennsylvania Rubber & Supply Co., the M. & M. Co., of Cleveland, and the Perkins-Campbell Co., of Cincinnati, which have been filed in the United States Circuit Court for the Ohio district.

There are also now pending similar suits against the E. A. Whitehouse Mfg. Co. and Le Compte Mfg. Co., in the District of New Jersey; against Motor Car Supply Co., James H. Lallou, Hugh A. Glackin, William G. Anderson, Frank M. Bell and James L. Gibney & Bro., in the Eastern District of Pennsylvania; against Cox Brass Mfg. Co. and Lowe Motor Supplies Co., Thomas Harper and American Auto Supply Co., in the Southern District of New York.

The patents involved are No. 883,973, April 7, 1908; No. 962,219, June 21, 1910; No. 962,220, June 21, 1910; No. 962,221, June 21, 1910; No. 978,023, December 6, 1910; No. 41,388, May 16, 1911; No. 41,389, May 16, 1911; No. 41,609, July 26, 1911; No. 41,637, August 1, 1911.

Williams-Lozier Suit Goes Over.

Trial of the suit for \$500,000 damages which Fletcher R. Williams has filed against the Lozier Motor Co., as told in last week's Motor World, and which was to have taken

place last Monday before Judge Seabury in the New York Supreme Court, was postponed by agreement to the 20th inst. The correlate suit of Joseph L. Rhinock against Lozier also went over to the same date. Fletcher seeks to recover for the failure of H. A. Lozier to sell to him the controlling interest in the Lozier Motor Co., as per an alleged agreement, and Rhinock wants \$150,000 as a brokerage fee for bringing Williams and Lozier together.

Packard Votes \$3,000,000 Note Issue.

Partly in the nature of casting an anchor to windward and thereby safeguarding itself against the effects of business depressions or political agitations and partly to retire bank loans, the Packard Motor Car Co., of Detroit, has formulated a note issue of \$3,000,000 five per cent. four year notes, \$2,000,000 of which were promptly taken by W. A. Read & Co., the New York bankers, who at once found a market for them at 5.35 per cent. After retiring the bank loans, the sale will provide about \$700,000 for additional working capital for the Packard company, with \$1,000,000 of the notes remaining in the treasury for future use, if required. The notes will mature in December, 1916, the company reserving the right to take them up before maturity at a premium. They will constitute a first lien on the Packard property, taking precedent on the stock issue of \$5,000,000 seven per cent. preferred and \$5,000,000 common, and also, by express stipulation, on any bond issue which may be made.

Remys to Re-enter Automobile Industry.

Frank Remy and B. P. Remy, who founded the Remy Electric Co., at Anderson, Ind. and who sold it for a handsome sum less than a year since, are reported to be on the point of re-entering the automobile industry. It is stated, however, that their new inventions which they purpose to manufacture will not conflict with the productions of the Remy company. Exactly what they are preparing to turn out has not been divulged as yet.

OFFERS TRUCK SHARES TO PUBLIC

International Places \$1,185,000 Preferred Stock on Market—Also Discloses Details of Its Organization Plan.

Having perfected the merger of the Saurer Motor Co., of Plainfield, N. J., and the Mack Bros. Motor Car Co., of Allentown, Pa., and entered into actual control of its property, the International Motor Co., of New York, is offering for public subscription 18,500 shares of its 7 per cent. cumulative stock at 97½. At this price the stock will yield 7.17 per cent.

The public offer of this stock discloses some hitherto undisclosed details of the big company's plan of organization and operation. It makes known that of the \$4,000,000 authorized preferred stock \$2,815,000 has been issued and that it is the remainder, \$1,185,000, that has been placed on the market. This preferred stock is followed by \$5,165,625 of common stock. The preferred has preference over the common in the event of liquidation or dissolution, the control of the stock being vested in a board of voting trustees consisting of C. P. Coleman, former president of the Saurer company, J. W. Mack, former president of the Mack company, and H. K. Pomroy, of the New York Stock Exchange firm Pomroy Bros., which trusteeship will continue until October 14, 1916.

There are no prior liens on the International property except \$155,000 bonds and mortgages of the subsidiary companies for the retirement of which provision already has been made, and according to the voting trustees' agreement no mortgage or other fixed obligation constituting a lien upon the property may be created or placed ahead of the preferred without consent of the holders of 75 per cent. of the preferred stock at that time outstanding. The dividends are cumulative, and if not paid in any one year, remain an obligation to be met before any dividend can be paid on

the common; also, if no dividend is paid in any period of twelve months holders of preferred stock have sole voting power while such default continues.

After December 31, 1914, the company is required to set aside 20 per cent. of the net earnings remaining after the preferred dividend, as a reserve fund for buying in the preferred stock at not more than \$120 a share before any dividend is paid on the common. If the stock cannot be acquired at or below that price the fund may be used for acquisition of property or equipment or held as a cash reserve part of the surplus fund. After payments into the reserve fund have aggregated \$500,000 further payments are not required. Provision is made that no dividend shall be paid on the common stock in 1912 unless the company shall have set aside \$210,000 surplus. No dividend is to be paid on the common in 1913 unless the surplus shall have been increased to \$400,000. In 1914 and thereafter the surplus fund must be not less than \$500,000 and no dividends may be paid on the common stock after that time when the surplus fund is below \$500,000.

It is announced that the Mack company is now producing at the rate of 1,200 trucks per year, and that the Saurer plant will be in full operation in the near future and thus provide for an output during the coming fiscal year of 2,000 trucks.

It is also disclosed by the report of the accountants who reported upon the properties and earnings of the two companies that on net sales of \$1,200,000 during the six months ending August 31st the Mack company earned a net profit of over \$250,000, or on a basis of more than \$500,000 per annum. Based on these figures, the stock prospectus directs attention to the fact that the dividend on the outstanding preferred stock, calling for \$197,050 per annum, is being earned more than two and a half times by the Mack plant alone and without regard to the logical increase which will come with the full operation of the Saurer factory.

Streator Settlement Finally Accepted.

Due to the action of a majority of its creditors, the Streator Motor Car Co., of Streator, Ill., makers of the Halladay car, will be able to rise superior to its embarrassment. After several meetings, 83 per cent. of the creditors voted to accept the proposition offered by J. C. Barlow and Paul R. Chubbuck, respectively president and vice-president of the company, and in due course, it will be freed from the bankruptcy court to which it voluntarily applied on September 23rd last for a measure of relief and in order to forestall unfavorable action by several dissenting creditors. The Barlow-Chubbuck settlement which finally has been accepted, will entail their turning over to a trustee about \$1,200,000 of their personal property as security for a loan of \$425,000, and the issuance of bonds to the creditors, who thus will receive 100 cents

on the dollar. The settlement was offered to the larger creditors before the crisis was reached but was refused by several of them. It was then that the Streator company filed a petition in bankruptcy, not seeking to be adjudicated a bankrupt but taking advantage of a new provision of law which forces minority creditors to accept a settlement approved by the majority.

Stearns Takes Royal Tourist Factory.

Further evidence that the adoption of the Knight engine has "made business" for the F. B. Stearns Co. was given last week when that company leased outright the near-by plant of the Royal Tourist Motor Car Co. in Cleveland, the Royal establishment having been at a standstill for months. Once possessed of the property, the Stearns people quickly removed their body building, upholstering, painting, road testing, final assembly and finished test departments to the Royal plant, thus giving much more room in the main factory on Euclid avenue, which will be continued in full operation with its entire facilities concentrated on the manufacture of the chassis. As fast as completed, chassis are run under their own power to the Royal factory—now styled Stearns plant No. 3—where they are tested out and the complete cars finished. Shipments are made from the Royal plant, and owing to the exceptional railway facilities offered the work of the shipping department will be greatly facilitated. Meanwhile work on an addition to the Stearns factory is in progress, and it is expected that it will be completed early in January next. The new building will be devoted wholly to machining operations and will materially assist in doubling the Stearns output, which is in view.

Wants Rice to Pay \$3,214 for Tires.

A suit for \$3,214.25 has been filed in the New York Supreme Court by the Thermoid Rubber Co., of Trenton, N. J., against the Mohawk Rubber Co., of Utica, N. Y., and its president and treasurer, Clarence B. Rice. The bill of complaint alleges that during the interval between May 10, 1911, and July 29, 1911, the plaintiff sold and delivered "at the express request and promise to pay of the defendant" to the latter goods and articles valued at \$8,597.45, but that the latter only accounted for, in cash and returned goods, \$5,383.20; the balance of \$3,214.25 remaining unpaid.

Sue for Return of Deposit Money.

Alleging a breach of contract, Badgley & Reichert, dealers in automobiles at Cedar Rapids, Iowa, have filed suit for \$1,052.79 against the Campbell Motor Car Co., Overland distributors for the State of Iowa. In their complaint the dealers claim that in August they entered into a contract with the Campbell company, under which the latter were to furnish them 50 Overland automobiles, and that they

deposited with the latter the sum of \$1,500. This sum the defendants were to hold until the termination of the contract, when the deposit was to be returned to the plaintiffs. It is now claimed that the Campbell company elected to terminate this contract on July 11 last, and that it did not return the deposit made according to agreement. In the interval Badgley & Reichert purchased from the defendants \$447.21 worth of supplies, which are deducted from the \$1,500 claim.

Hayes Not to Abandon Detroit Plant.

Because the Hayes Mfg. Co., of Detroit, has in view the establishment of a branch factory in Indianapolis, the report has gone abroad that the company purposed abandoning its Detroit plant and concentrating at Indianapolis. That such is far from the truth, however, is indicated by Secretary Carrow, of the Hayes company, who states that the mere fact that they are at the present time expending more than \$100,000 in the construction of additional buildings at Detroit should be sufficient to give the rumor its quietus. Detroit, he adds, will continue to be the Hayes headquarters, and even if a plant is established in Indianapolis the greater part of the Hayes output of sheet metal parts and forgings will continue to be made in the Michigan city.

Best Year in Solar Lamp History.

Despite the great competition that has developed since the Badger Brass Manufacturing Co., of Kenosha, Wis., first began the production of acetylene gas lamps, that pioneer company has been able to more than hold its own. At its annual meeting, which was held last week, the official report showed that the past year had proved the best in the history of the company. It had not only done more business than ever before but it has on hand orders for more than a million dollars worth of Solar lamps for future delivery. Also not one cent of money is owed to any one; not even a bank loan is outstanding.

Work Started on Chevrolet Factory.

The first steps towards the construction of a factory for W. C. Durant's new enterprise, the Chevrolet Motor Car Co., of Detroit, which now is occupying temporary quarters in that city, were taken last week, when the work of clearing the recently purchased site at Woodward avenue and Hamilton Boulevard was commenced. The site has a frontage of 700 feet on Woodward avenue. The factory which will be erected will be a five story structure about 600 feet long.

Pierce-Arrow to Build Truck Plant.

The Pierce-Arrow Motor Car Co. is preparing to build a separate truck factory on a 35 acre plot in Buffalo, which is bounded by New York Central tracks, Hertel avenue, Colvin and Fairfield streets. The price paid for the site alone was \$165,000.

INDUSTRY'S OUTPUT, \$249,202,000**Supplementary Census Statistics Give Production of Both Cars and Parts—Instructive Averages Afforded.**

If anything has afforded more room for speculation than the number and value of the automobiles produced in this country, it has been the extent and value of parts production. It was possible to make at least a long-distance and partly satisfactory estimate of the number of cars manufactured, but all figures affecting the parts trade were at best little more than wild guesses. In April last when the preliminary report of the 1909 census was made public, the exact status and the exact output of cars was disclosed, and if press agents can blush those statistics caused more than one press agent to blush. When the truth came out via the census office it was shown that there were 316 manufacturers who had produced a total of 127,289 complete cars, and this week the same source made public that in 1909 there were 427 producers of bodies and parts whose combined outputs attained a value of \$84,986,000.

One of the most significant facts made public by the census figures is the average price of the automobiles manufactured during 1909, which amounted to \$1,297, as compared with \$1,079, which was the average price obtained in 1904. The profits gained in making the 127,289 complete cars figured up to \$38,611,000, or 22.21 per cent. on the \$173,837,000 capital invested.

The summary shows increases in all the items of the census of 1909 as compared with that for 1904.

The number of establishments increased 317 per cent.; capital invested, 653 per cent.; the gross value of products, 730 per cent.; cost of materials, 901 per cent.; value added by manufacture, 596 per cent.; average number of wage earners employed during the year, 528 per cent.; amount paid for wages, 580 per cent.; number of salaried officials and clerks, 682 per cent.; amount paid in salaries, 654 per cent.; miscellaneous expenses, 389 per cent.; primary horsepower, 647 per cent.

There were 743 establishments in 1909 and 178 in 1904, an increase of 317 per cent.

The capital invested as reported in 1909 was \$173,837,000, a gain of \$150,753,000, or 653 per cent., over \$23,084,000 in 1904. The average capital per establishment was approximately \$234,000 in 1909 and \$130,000 in 1904.

The value of products was \$249,202,000 in 1909 and \$30,034,000 in 1904, an increase of \$219,168,000, or 730 per cent. The average per establishment was approximately \$335,000 in 1909 and \$169,000 in 1904.

The cost of materials used was \$131,646,000 in 1909, as against \$13,151,000 in 1904.

**AUTOMOBILES, BODIES AND PARTS—GENERAL SUMMARY:
1909 AND 1904.**

	Census		Per cent. of increase, 1904-1909
	1909	1904	
Number of establishments.....	743	178	317
Capital	\$173,837,000	\$23,084,000	653
Cost of materials used.....	\$131,646,000	\$13,151,000	901
Salaries and wages.....	\$58,173,000	\$8,416,000	591
Salaries	\$9,479,000	\$1,257,000	654
Wages	\$48,694,000	\$7,159,000	580
Miscellaneous expenses	\$20,872,000	\$4,266,000	389
Value of automobiles made*.....	\$164,216,000	\$23,751,000	591
All other products†.....	\$84,986,000	\$6,283,000	1,253
Value of products.....	\$249,202,000	\$30,034,000	730
Value added by manufacture (products less cost of materials).....	\$117,556,000	\$16,883,000	596
Employees:			
Number of salaried officials and clerks	9,233	1,181	682
Average number of wage earners employed during the year.....	75,721	12,049	528
Primary horsepower	75,550	10,109	647

* In addition, in 1909, 719 automobiles, valued at \$899,000, and in 1904, 1,138, valued at \$379,000, were made by establishments engaged primarily in the manufacture of other products.

† In addition, in 1909, bodies and parts to the value of \$4,484,000 were made by establishments engaged primarily in the manufacture of other products.

**NUMBER AND VALUE OF MACHINES BY KIND OF POWER,
AND PER CENT. OF INCREASE: 1909 AND 1904.**

Kind of Machines			Per Cent. of increase
	1909	1904	
Number	127,289	22,830	458
Value	\$165,115,100	\$24,630,400	570
Gasolene—			
Number	121,274	19,837	511
Value	\$155,068,100	\$20,446,100	658
Electric—			
Number	3,639	1,425	155
Value	\$6,564,500	\$2,496,300	163
Steam—			
Number	2,376	1,568	52
Value	\$3,482,500	\$1,688,000	106

**AUTOMOBILES—NUMBER OF MACHINES, CLASSIFIED BY HORSE-
POWER RATING: 1909**

Class	Total number	Horsepower—					
		Less than 10	10 but less than 20	20 but less than 30	30 but less than 50	50 but less than 90	90 or more
Total	127,289	7,542	29,657	35,380	51,457	3,224	29
Pleasure and family vehicles	122,505	7,217	27,807	33,905	50,488	3,059	29
Buggies	4,582	482	3,705	339	56	...	...
Runabouts	36,496	4,538	17,818	10,933	3,043	157	7
Touring cars	76,433	177	5,415	21,878	46,117	2,825	21
Closed	3,963	1,571	855	729	749	63	1
Other varieties	1,026	449	14	26	523	14	...
Public conveyances	1,428	10	630	537	207	44	...
Cabs	1,203	...	627	521	55	...	...
Omnibuses	225	10	3	16	152	44	...
Government, municipal, etc.	68	5	2	12	33	16	...
Ambulances	32	5	2	6	17	2	...
Patrol wagons	36	...	...	6	16	14	...
Business vehicles	3,288	310	1,218	926	729	105	...
Delivery wagons	1,875	264	884	628	98	1	...
Trucks	1,401	46	330	297	627	101	...
Other varieties	12	...	4	1	4	3	...

an increase of \$118,495,000, or 901 per cent. In addition to the component materials which enter into the products of the establishment for the census year there are included fuel, rent of power and heat, and mill supplies.

The value added by manufacture was \$117,556,000 in 1909 and \$16,883,000 in 1904, an increase of \$100,673,000, or 596 per cent. This item formed 47 per cent. of the total value of products in 1909 and 56 per cent in 1904. The value added by manufacture represents the difference between the cost of materials used and the value of products after the manufacturing processes have been expended upon them. It is the best measure of the relative importance of industries.

The miscellaneous expenses amounted to \$20,872,000 in 1909 and \$4,266,000 in 1904, an increase of \$16,606,000, or 389 per cent. Miscellaneous expenses include rent of factory or works, taxes, and amount paid for contract work, as well as such office and other expenses as can not be elsewhere classified.

The salaries and wages amounted to \$58,173,000 in 1909 and \$8,416,000 in 1904, an increase of \$49,757,000, or nearly 591 per cent.

The number of salaried officials and clerks was 9,233 in 1909 and 1,181 in 1904, an increase of 682 per cent.; their salaries increased from \$1,257,000 to \$9,479,000, or 654 per cent.

The average number of wage earners employed during the year was 75,721 in 1909 and 12,049 in 1904, an increase of 528 per cent.; their wages increased from \$7,159,000 to \$48,694,000, or 582 per cent.

The salaries and wages paid out during 1909 went to 9,233 salaried officials and clerks, whose average salary therefore was \$1,026, and to 75,521 wage-earners, who received on an average \$644 each during the year. In 1904 the earning capacity was slightly greater in the case of salaried officials and clerks, who got on an average \$1,069 each, while wage-earners received but \$594 each.

The primary horsepower was 75,550 in 1909 and 10,109 in 1904, an increase of 647 per cent.

The average horsepower per establishment, considering all establishments, was approximately 102 horsepower in 1909 and 57 in 1904.

The summary of number and value of machines by kind of power includes all the machines made either as a chief or minor product, whether by establishments classified as "Automobiles, including bodies and parts," or under other designations in accordance with their chief products. There was a total of 316 establishments making one or more machines in 1909, and 168 in 1904, an increase of 88 per cent. The number of machines increased from 22,830 to 127,289, or 458 per cent. Of these, gasoline increased from 19,837 to 121,274, or 511 per cent.; electric, from 1,425 to 3,639,

or 155 per cent.; and steam, from 1,568 to 2,376, or 52 per cent.

Of the total number of machines, 122,505, or 96 per cent., were pleasure and family vehicles; 1,428, or 1 per cent., public conveyances; 68 were for government and municipal purposes; and 3,288, or 3 per cent., were business vehicles.

The largest number of machines, 51,457, or 40 per cent., were rated at 30 but less than 50 horsepower; those rated at 20 but less than 30 numbered 35,380, or 28 per cent.; those at 10 but less than 20, 29,657, or 23 per cent.; and those at 50 but less than 90, 3,224, or 3 per cent. There were 7,542 less than 10 horsepower and only 29 rated at 90 or more.

If the automobiles and bodies and parts made in the 245 establishments engaged primarily in the manufacture of other products be added to the figures in the general summary, the total value of products in 1909 becomes \$254,585,000. In 1904 the by-products reported make the total value \$30,913,000.

Although in the table 743 establishments are numbered as engaged in automobile manufacture, only 316 of these, as stated, actually manufactured complete cars, the remaining 427 being makers of parts.

Of the accompanying table only the first section, dealing with the production of automobiles, bodies and parts, is new, the other two sections having been included in the preliminary census report, issued in April last, and published in the Motor World on April 27.

Changes Among Prominent Tradesmen.

R. T. Wingo, recently of the Cadillac staff and previously for some twenty-two years with the Brown & Sharpe Mfg. Co., has been appointed production manager for The Hupp Corporation, of Detroit.

W. J. Clements, former sales manager of the Krit Motor Sales Co., of Detroit, has been appointed manager of the Krit Motor Car Co.'s Buffalo branch. He will direct the distribution of Krit cars in that territory.

Edwin A. Walton, previously assistant advertising manager of the Burroughs Adding Machine Co., has been appointed advertising manager for the Timken Roller Bearing Co. and the Timken Detroit Axle Co. He will be located at the office of the latter company in Detroit.

A. D. McLachlan has been appointed sales manager of the Sanford-Herbert Co., of Syracuse, which is building a light delivery wagon and which is preparing to expand. McLachlan was for ten years connected with the Royal Tourist Motor Car Co., of Cleveland, as a member of the selling staff.

J. A. Jones has been appointed manager of the Diamond Rubber Co.'s retail branch at Golden Gate and Van Ness avenues, in San Francisco. He succeeds J. Ingersoll, who resigned to assume the management

of the Keaton Vulcanizing Works, of San Francisco, distributors of the Swinehart tires.

Roy Watts, former power apparatus manager and engineer of the Western Electric Co., has been added to the staff of the Remy Electric Co. as special traveling representative. He will devote most of his time to visiting electrical supply dealers as well as gas and gasoline engine manufacturers.

Thomas Marshall has been appointed manager of the Indianapolis branch of the United States Motor Co. He succeeds John Hayden, who resigned because of ill health. Marshall has been connected with the Maxwell factory and other branches of the United States Motor Co. for several years.

A. M. Welch, who for about eight years was identified with the Studebaker interests and who for the past year has been manager of the commercial vehicle department of the H. H. Franklin Mfg. Co., has engaged with the Stevens-Duryea Co., of Chicopee Falls, Mass. He will take up territorial work.

F. R. Bump, who has had ripe experience in the sales departments of the Franklin and Reo companies, and who latterly has been sales manager of the Universal Motor Truck Co., of Detroit, has been appointed assistant sales manager of The Hupp Corporation in that city, and will have charge of the sales, advertising and service departments.

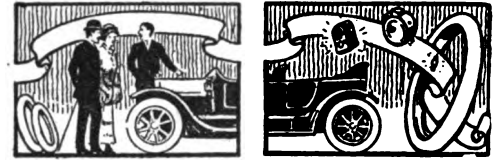
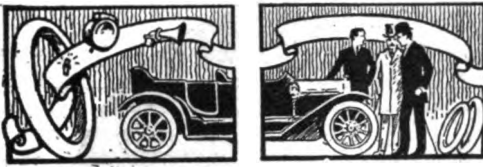
Henry G. McComb, former chief engineer of the E. R. Thomas Motor Co., and latterly assistant general manager of the Louis J. Bergdoll Motor Co., of Philadelphia, has resigned the latter office to become manager of the commercial engineering department of Wyckoff, Church & Partridge, Inc. He will be located in New York City and not at the Wyckoff factory in Kingston, N. Y.

Holbrook-Armstrong Not to Make Cars.

Reports that the Holbrook-Armstrong Co., of Racine, Wis., a \$300,000 concern, was preparing to engage in the manufacture of automobiles have been authoritatively denied. The company has been manufacturing automobile engines for some time and the reports, apparently, grew out of the fact that it had taken a contract and completed three runabout chassis for a Chicago concern.

Twiford Transmission for Texas Truck.

The Commercial Motor Vehicle Co., of San Antonio, Tex., has secured the right to operate under the Twiford four-wheel drive patent. In return for the right R. E. Twiford and the other owners of the patent are given 25 per cent. of the capital stock of the Commercial company and 6 per cent. royalty on the trucks which it may produce.



H. M. Widrig has opened a garage and salesroom in Mt. Clemens, Mich. He will sell Hupmobiles.

A new garage is in course of erection on Washington avenue, Racine, Wis. A. Anderson is building it.

Robert F. Payne has broken ground for a new garage at 204 Rutger street, Utica, N. Y. It will cost \$4,500.

G. L. Hudkins, who sold Ford cars in Cawker City, Kan., has transferred his business to Salina, Kan. He will continue to handle the same make.

The Mitchell Motor Co., of Omaha, Neb., has found its old quarters too cramped and has moved into more commodious salesrooms at 2050 Farnam street.

George Rodemann is building a two-story brick garage at the corner of Atlantic and New York avenues, Brooklyn, N. Y. It will cost, when complete, \$8,000.

F. R. Gamble has bought out his partner, E. W. Gamble, in the firm F. R. Gamble & Co., of Columbia, Tenn. He will drop the "Co." and continue the business in his own name.

The Cartercar Iowa Automobile Co. has been formed to succeed Cruzan & Co., former Cartercar agents in Des Moines, Ia. Charles M. Friedberg is manager of the new concern.

W. V. Carringer and Henry Barrett have purchased an interest in the Model Auto Co., of Clinton, Ia. The company will be incorporated with these two and F. E. Lowell as directors.

The firm of Russell & Walker, which operated a garage at Devil's Lake, N. D., has been dissolved, Walker retiring. Russell will continue the business under the style Devil's Lake Garage.

The Goodyear Tire & Rubber Co. has inaugurated its new branch store at 1562 Broadway, Denver, Colo. It is reputed to be the handsomest establishment of the sort west of the Mississippi.

The Bolmer Motor Car Co., Bound Brook, N. J., is building a two-story reinforced concrete and steel structure on East Main street, to be used as a garage. The building will be 100 x 49 feet.

George W. Garland, Jr., has purchased the interest of his partners, George and Edward Strobel, in the Garland Automobile Co., of New York City. The company distributes Velie and Speedwell cars.

The Warren Texas Motor Car Co. has opened salesrooms at 2014 Commerce street, Dallas, Tex. W. C. Boren and E. C. Dodson are managers of the concern, which of course, will handle Warren-Detroit cars.

The Michelin Tire Co. has opened a branch in Los Angeles at 749 South San Pedro street. It is in charge of J. R. Wells, who previously was connected with the Michelin company's San Francisco depot.

The Serage Automobile Co., of Joplin Mo., one of the oldest concerns in the State, has found its quarters too cramped and moved into a new building at 1602 Main street. The company handles the Studebaker, E-M-F, Garford, and Flanders cars.

Carlson Brothers, who are the proprie-



PENCE AUTOMOBILE CO.'S NEW STORE IN MINNEAPOLIS

tors of the Metropolitan Carriage Co., have added automobiles to their other interests. For this purpose they are building a cement garage on Grand street, Bridgeport, Conn., which will be 50 x 150 feet and of fireproof construction.

Under the style Hughes & Dalley-Baker Electrics, a new company has been organized at Minneapolis, Minn., with headquarters at Tenth street and First avenue, to handle Baker electrics in the Flour City. H. L. Hughes and H. C. L. Dalley comprise the partnership.

The partnership of Myers & McGillivray, owners of a garage in Fenton, Mich., has been dissolved. Dr. A. M. Switzer, of the same town, has bought an interest in the garage and will continue it with Myers under the style Fenton City Garage. The firm will handle the Hupmobile.

Mason Towle and A. B. Towle have purchased a controlling interest in the business of the Steinhart-Jensen Automobile Co., of Joliet, Ill., and changed its name to Towle Automobile Co. Simultaneously with changing the name, the capital stock of the company has been raised from \$5,000 to \$10,000.

Following its recent policy of establishing factory subsidiaries in all the larger cities, the Packard Motor Co., of Detroit, Mich., has taken over the business of the Welch Bros. Motor Car Co., of Milwaukee, Wis., Packard agents for the State of Wisconsin. O. G. Heffinger will be general manager, and R. C. Chidester, sales manager.

A petition in voluntary bankruptcy has been filed by the Baldwin Mfg. Co., dealer in automobile supplies and specialties, at 143 Federal street, Boston, Mass. Its liabilities are fixed at \$9,617.90, of which \$7,614.62 is unsecured; assets amount to \$4,506.62. The company is incorporated under Maine laws. A receiver has been appointed.

The garage and showroom formerly occupied by the Electric Carriage & Battery Co., on Harmon place, Minneapolis, Minn., has been taken over by the Rauch & Lang Electric Car Co., which will operate the establishment as a factory branch. The officers of the Minneapolis branch are: President, Charles Rauch; vice-president, H. E. Fletcher; secretary, treasurer and manager, J. G. McClurg.

Emil Hauck has been appointed receiver for the Hayes & Havens Auto Livery Co., 5 West Canal street, Cincinnati, O. The appointment was the result of a petition filed by Gus L. Hayes against his partners, Charles F. Havens, Leo R. Wise and Max Wise, charging them with attempting to oust him from the company. It is claimed that the company is solvent, but that its affairs are in a tangled state owing to the dissension among the partners.

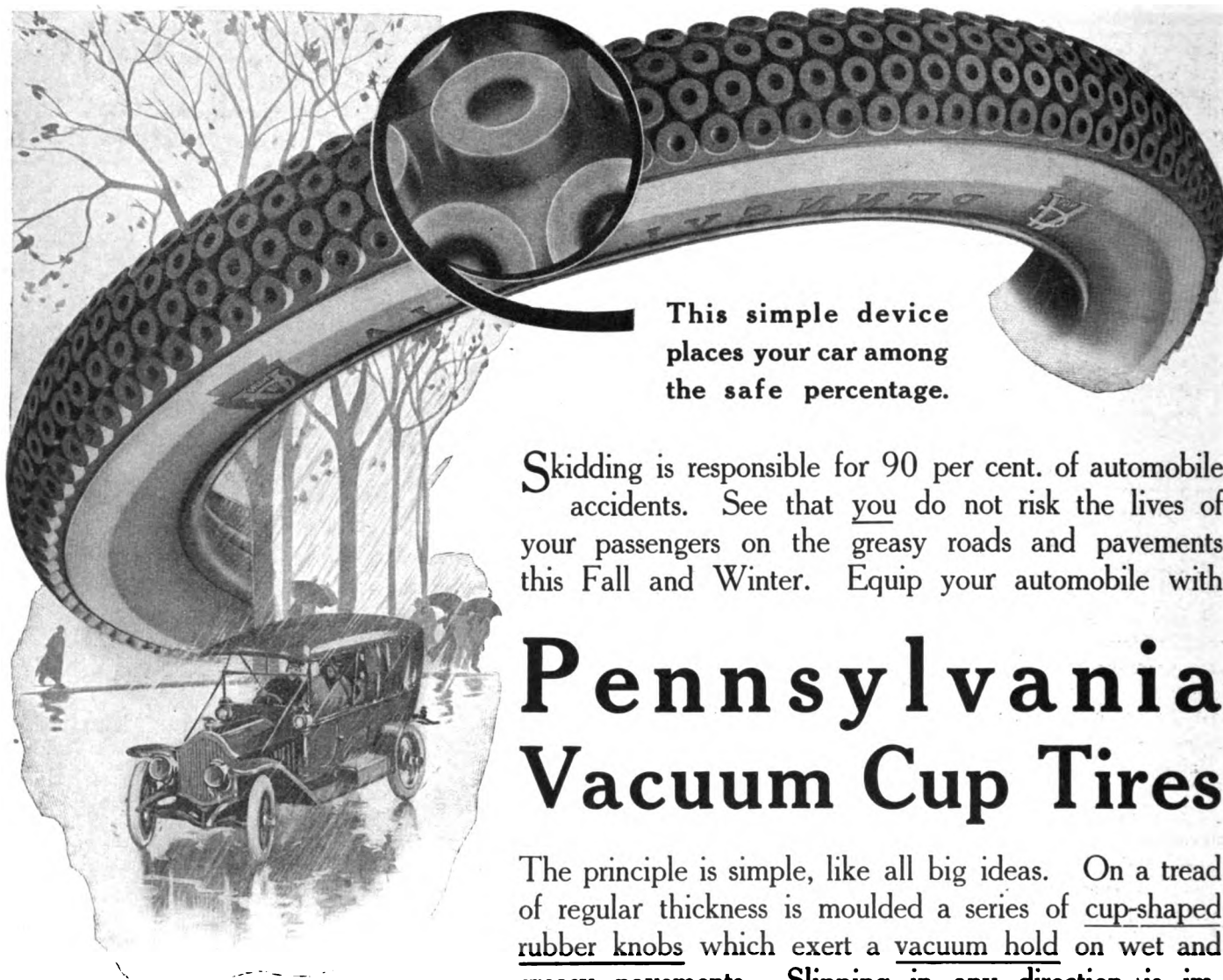
Recent Losses by Fire.

Lafayette, Ind.—Star City Garage and the Jamison Garage wrecked by tornado.

Lynn, Mass.—Charles E. Whitten's garage, rear of 38 Central avenue, and two cars destroyed. Loss, \$9,000.

Kansas City, Mo.—Peck Auto Co.'s garage at 1424 McGee street and contents damaged. One automobile destroyed. Loss estimated at over \$10,000.

Washington, D. C.—Buick Motor Co.'s branch at 1139-1141 Seventeenth street Northwest, and 24 cars destroyed. Loss estimated at over \$35,900.



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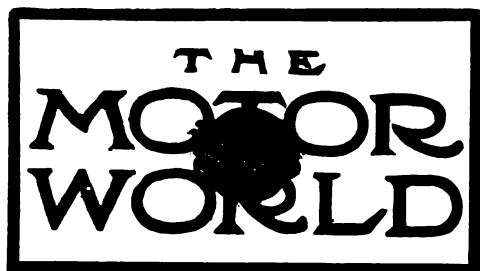
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New York City, 1700 Broadway

Pennsylvania Rubber Co. of California
San Francisco, 512-14 Mission St.

Los Angeles, 930 So. Main St.



Trade Mark



PUBLISHED EVERY THURSDAY BY

The Motor World Publishing Co.

A. B. SWETLAND.....President
F. V. CLARK.....Secretary-Treasurer
R. G. BETTS.....Managing Editor
154 Nassau Street, NEW YORK, N. Y.

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) . . . 10 Cents
Foreign and Canadian Subscriptions . . . \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceeding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, NOVEMBER 16, 1911.

About Electric Vehicle Schools.

At this time the establishment of electric vehicle schools, the suggestion of which recently was let fall, scarcely is feasible. Certainly they could not be profitably maintained as separate institutions, but the suggestion is such a good one that it would appear that the more enterprising of the many so-called "automobile schools" should make haste to add a course of electric vehicle instruction to their curriculum.

While there is not nearly so much that is complex or mysterious about electrics as there is about gasoline cars, there prevails a surprising amount of ignorance regarding the comparatively little there is to be learned. Without much outlay, the existing schools easily may impart such instruction to their pupils, and it is of such a nature that most of the "graduates" will be more truly competent to handle and care for electrics than is the case with men who become "gas car experts" as the result

of six weeks' tuition in one of these schools.

There is no question that the electric vehicle now is "looking up" as it never has "looked up" and that it affords opportunities which are not to be denied and which will be immensely enlarged the very day that any manufacturer summons the necessary courage and capital to produce electric cars in sufficient quantities to permit of the establishment of what may be termed a truly popular price.

While it is wholly unlikely that the electric ever will seriously threaten the gasoline car, there is small room for doubt that a popular price instantly will be followed by a tripling or quadrupling of its sales. The garage problem and the chauffeur problem—the latter of which is akin to the servant girl question—have left many owners of gasoline cars in a frame of mind which inclines them toward the electric, and in a number of known instances already has resulted in their purchase of electric cars, which minimize if they do not entirely solve the problems.

The Way to Stop Joy Riding.

According to the last report of the secretary of the so-called National Highways Protective Society—which report, as usual, was rendered to the newspapers—89 persons were killed and 855 injured on the streets of Greater New York during the first 10 months of the current year. The number of casualties due to other vehicles is not given. In rendering his report the secretary, who practically is the whole society, rates "the 'joy rider' and the 'night-hawk' cabman as the most dangerous factors to life and limb in the city," to which the activities of the society, despite its formidable title, are almost wholly confined.

Notwithstanding the manifest desire of the secretary to make undue capital of automobile accidents, and despite his admission, once made to a Motor World representative, that he "played up" such accidents because that policy brought the most contributions to his till, the work of the society is not to be despised; it has exerted a good influence, if nothing more, and its conclusion that the "joy rider" and the "nighthawk" cabman are the chief perils of the highway is well within reason. Perhaps those evils always will be with us in greater or less degree, for certainly the law aimed at the "joy rider" and which makes his crime a felony has failed woefully as

a means of greatly reducing the offense.

"Joy riding" continues to flourish to an extent almost beyond belief and fully known only to garagemen and chauffeurs. The garage which does not house at least one chauffeur given to nightly theft of his employer's car probably is the exception and not the rule; most of them house more than one such culprit. There are garages which are perfect hotbeds of "joy riding," but for some reason the average garageman and the average chauffeur consider themselves interdependent. They protect each other, so to speak, from the car owner who pays both for honest service. The protection is carried to great extremes.

In one recent instance the garageman, who himself had a car for rent, wailed continually because a chauffeur on his premises was "hacking" his employer's car at less rates than the garageman considered fair competition. But despite his knowledge the garageman failed to notify the car owner of the almost nightly theft and misuse of his property. It continued until finally the crook lost his job, and even then he was permitted to hang around the garage until the garage owner was given a stern choice by another patron of his establishment who had discovered that his own car was being similarly misused.

This may be an extreme case, but the fact remains that "joy riding" cannot long continue without the knowledge of the garage owner and his night superintendent. They can come pretty close to stopping it whenever they will and whenever they cease to seek subterfuges and begin giving the car owner a square deal and the protection for which he pays well. Since it is apparent, however, that many garagemen will not apply the remedy that is within their own hands, the A. A. A., the Highways Protective Society or some other body should induce the Legislature to apply the remedy. For joy riding can be stopped, and quickly. Simply so amend the anti-joy-riding law that the garage owner or the garage superintendent, or both, shall be made accessories to the crime committed by the chauffeur. Such a law instantly will not merely clarify the garage atmosphere, but it will make the highways safer and save many lives and many limbs, all of which are objects well worth serving. When everything else failed to stop racetrack gambling, a law of the sort which made the track owners and directors personally culpable stopped it instantly and effectively.



Detroit, Mich.—Cass Automobile and Repair Co., under Michigan laws, with \$10,000 capital; to deal in automobiles.

Chicago, Ill.—National Spring Tire Co., under Illinois laws, with \$125,000 capital. Corporators—Charles H. Sigman, Jr.; Louis Valance, Charles H. Jackson.

Rochester, N. Y.—Plymouth Garage Co., under New York laws; to maintain garages. Corporators—C. Burton Nye, C. Eugene Barker, Charles E. Maselli.

Tulsa, Okla.—Southwestern Auto Co., under Oklahoma laws, with \$1,000 capital; to deal in automobiles. Corporators—J. D. Gibby, Carl C. Magee, Hull Hancock.

Evansville, Ind.—F. W. McNeely & Co., under Indiana laws, with \$25,000 capital; to deal in automobiles. Corporators—Chester Ranking, F. W. McNeely, Alice McNeely.

Dallas, Texas—Indiana Motor Car Co. of Indianapolis, Ind., under Texas laws, with \$10,000 capital; to deal in automobiles and motor vehicles in the State of Texas.

Columbia, S. C.—Etheredge Motor Co., under South Carolina laws, with \$10,000 capital; to deal in automobiles and motor vehicles. Corporators—E. J. Etheredge, Robert L. Mitchell.

Marion, Ind.—Auto Machine Co., under Indiana laws, with \$10,000 capital; to deal in automobiles, motor vehicles and supplies. Corporators—G. D. Lindsay, B. A. Tong, R. E. Breed, Sr.

New Haven, Conn.—Pyramid Automobile Co., under Connecticut laws, with \$5,000 capital; to deal in automobiles and motor vehicles. Corporators—Walter H. Goodrich, Henry P. Johnson.

Chicago, Ill.—Federal Motor Car Co., under Illinois laws, with \$10,000 capital; to deal in automobiles and motor trucks. Corporators—Carey W. Rhodes, David F. Rosenthal, Leo S. Kositchek.

Seattle, Wash.—The Arcticmobile Co. of Seattle, under Washington laws, with \$1,000,000 capital; to manufacture and deal in automobiles. Corporators—Sam B. McCrea, F. G. Horner, and others.

St. Louis, Mo.—Mack Motor Truck Co. of St. Louis, under Missouri laws, with \$25,000 capital; to deal in motor vehicles. Corporators—Frank J. Buch, Knox Tausig, T. S. McPheeters, William A. Thomas.

Detroit, Mich.—Chevrolet Motor Co., under Michigan laws, with \$100,000 capital; to manufacture and deal in automobiles and motors. Corporators—Louis Chevrolet, Edwin R. Campbell, William H. Little.

Flint, Mich.—Little Motor Car Co., under Michigan laws, with \$1,200,000 capital; to manufacture automobiles and motor ve-

hicles. Corporators—W. H. Little, Detroit, Mich.; C. M. Begole, W. S. Ballinger, Flint, Mich.

Cincinnati, Ohio—Muhle Motor Car Co., under Ohio laws, with \$20,000 capital; to deal in automobiles and motor vehicles. Corporators—Henry M. Muhle, John C. Miller, Ida A. Muhle, Mary Smith, Elizabeth Muhle.

Chicago, Ill.—General Auto and Repair Co., under Illinois laws, with \$25,000 capital; to deal in automobiles, operate taxicabs and maintain a garage. Corporators—W. R. Potter, George H. Davis, Jr., Frank H. T. Potter.

New York City, N. Y.—Benford Manufacturing Co., under New York laws, to manufacture and deal in motor vehicles. Corporators—G. Brauburger, Elizabeth, N. J.; E. I. Kleinfeld, M. Klein, both of New York City.

Conneaut, Ohio—Trio Horn Manufacturing Co., under Ohio laws, with \$25,000 capital; to manufacture warning signals for automobiles and motor vehicles. Corporators—Ire E. Stump, B. E. Gordon, F. B. Kavanaugh, George Collings.

Brooklyn, N. Y.—Bedford-Bergen Auto Exchange, under New York laws, with \$25,000 capital; to manufacture automobiles, machinery and motor supplies. Corporators—M. Keve, R. Brown, Brooklyn, N. Y.; C. Goldstein, New York City.

Indianapolis, Ind.—The Hoosier Motor Club, under Indiana laws, to promote good roads. No capital. Corporators—Charles A. Bookwalter, H. C. Smith, J. W. Selvage, C. W. Sedwick, H. H. Price, C. L. Diers, Homer McKee, Bert A. Boyd.

Portsmouth, Ohio—Portsmouth Automobile and Machine Co., under Ohio laws, with \$10,000 capital; to manufacture and deal in automobiles. Corporators—Lincoln Poole, Walter O. Ruhlman, Roy A. Oakes, Filmore Musser, Edward C. Riegel.

St. Louis, Mo.—Schelp-Budke Tire and Rubber Co., under Missouri laws, with \$10,000 capital; to manufacture and deal in automobile tires and rubber goods. Corporators—Conrad Budke, C. M. Schelp, W. F. Schelp, George H. Schelp, H. A.

Bradford, Pa.—Bradford Auto Exchange, under Pennsylvania laws, with \$30,000 capital; to manufacture and deal in automobiles. Corporators—F. H. Head, L. I. Holmes, F. H. Logan, all of Bradford, Pa.; S. L. Libbits, Custer City, Pa.; F. L. Gallup, Smithport, Pa.

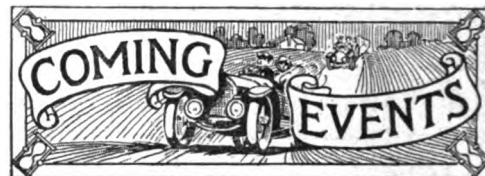
Increases of Capital.

Buffalo, N. Y.—Thomas Motor Co., from \$50,000 to \$100,000.

Birmingham, Ala.—Highland Garage Co., from \$5,000 to \$25,000.

Minneapolis, Minn.—The Thomas Motor Cab Co., from \$50,000 to \$100,000.

Milwaukee, Wis.—The Waverley Manufacturing Co., from \$25,000 to \$50,000.



November 20-25, Indianapolis, Ind.—Indianapolis Automobile Trade Association's fall opening.

November 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

November 30, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

November 30, Los Angeles, Cal.—Race-meet at Los Angeles Motordrome.

December 25-26, Los Angeles, Cal.—Race-meet at Los Angeles Motordrome.

January 2-10, New York City, N. Y.—Importers' salon at Hotel Astor.

January 6-13, New York City—Automobile Board of Trade's 12th annual show in Madison Square Garden. Pleasure vehicles only.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual national show in New Grand Central palace. Pleasure and commercial vehicles.

January 13-19, Milwaukee, Wis.—Milwaukee Automobile Dealers' Association's annual show in Auditorium.

January 13-27, Philadelphia, Pa.—Philadelphia Automobile Trade Association's annual show in First and Third Regiment Armories.

January 15-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden. Commercial vehicles only.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

January 22-27, Providence, R. I.—Rhode Island Licensed Automobile Dealers' Association's show in the State Armory.

January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association's annual show at Wayne Garden.

January 27-February 3, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in the Coliseum and 7th Regiment Armory. Pleasure vehicles only.

February 5-10, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in the Coliseum and 7th Regiment Armory. Commercial vehicles only.

February 17-24, Newark, N. J.—New Jersey Automobile Exhibition Co.'s annual show in First Regiment Armory.

March 2-9, Boston, Mass.—Boston Automobile Dealers' Association's annual show in Mechanics' Hall. Pleasure vehicles only.

HOFFMAN USED THE LEAST GASOLENE

And Therefore Earned Chief Honors in Harrisburg's Chilly Economy Contest—Averages 20 Miles per Gallon.

Seventeen Pennsylvanians partook of the doubtful joys of near-winter touring on Monday last, 13th inst., when they covered 104.5 miles in the course of an economy contest under the auspices of the Harrisburg Motor Club. The route was from Harrisburg to York, Pa., over fairly good roads, and all save two of the starters survived. Roy Hoffman, driving a 1912 self-starting Hudson belonging to J. W. Dill, carried off the honors by consuming but five gallons and one-eighth of a pint of gasoline for the entire trip. Murray Dick, also driving a Hudson, and C. C. Crispen, at the wheel of a Cadillac, were close runners-up.

The day was too cold for pleasure and the contestants ran ahead of schedule, but as the time did not figure in the awards the speeding made no difference in the results. The two sufferers of the contest were George G. McFarland, driving a Reo, who skidded and broke the rear axle, and D. Menker, who was compelled to withdraw on account of leaks in the water and gasoline connections of his Kline.

The contestants and their records were as follows:

Driver and car.	Gals.	Qts.	Pts.
Roy Hoffman, Hudson	5	0	$\frac{1}{8}$
Murray Dick, Hudson	5	1	1
C. C. Crispen, Cadillac	5	1	$1\frac{3}{4}$
J. W. Dill, Inter-State	5	2	$1\frac{3}{4}$
H. D. Delmott, Cadillac	5	3	$\frac{1}{2}$
J. C. Crispen, Cadillac	6	0	$1\frac{1}{4}$
W. P. Starkey, Cadillac	6	1	0
R. L. Morton, Chalmers	6	1	$\frac{1}{2}$
E. L. Craft, Flanders	6	3	$1\frac{1}{2}$
C. E. Covert, Cadillac	7	2	$\frac{1}{2}$
G. C. Furl, Everitt	7	2	1
John Gallagher, Chalmers	7	2	$1\frac{1}{2}$
J. L. Craft, E-M-F	7	3	$1\frac{1}{8}$
J. H. Banfer, Hudson	8	3	0
J. A. Kline, Kline	8	3	$1\frac{1}{2}$
D. Menker, Kline	Withdrawn		
G. G. McFarland, Reo	Withdrawn		

Witt and Evans Break Small Car Records.

When they decided to test the speed of the two Flanders cars which have been entered in the Savannah (Ga.) road races the Studebaker Corporation killed two birds with one stone. The cars were not only tested to the fullest satisfaction, but official records were established at the same time. A. A. A. sanction having been secured. The tests were made on the Indianapolis (Ind.) Speedway Monday last, 13th inst., and new marks hung up were for cars of less than 160 inches displacement at one, five, 10, 15 and 20 miles. Chairman F. E. Edwards of the A. A. A. technical committee was in charge, assisted by C. W. Sedwick, Indiana representative of the A. A. A. C. H. Warner was the official timer. No attempt was made to break records for more than 20 miles, as both Frank Witt

and Robert Evans, who piloted the cars, suffered from the cold. The times were:

Frank Witt, Class B, stock chassis—One mile, 0:56.80; five miles, 4:22.98; 10 miles, 9:27.49; 15 miles, 14:13.26; 20 miles, 19:00.87.

Robert Evans, Class C, non-stock—Five miles, 4:26.10; 10 miles, 8:53.95; 15 miles, 13:24; 20 miles, 17:54.70.

Savannah Profits to Go to Militia.

All of the net profits of the Grand Prize, the Vanderbilt Cup and the light car races to be held at Savannah on November 27th and 30th will go to the military companies of that Georgia city, which will again guard the course. The Savannah militia, which is composed of commands having a long and proud history, six of the 14 companies being more than 100 years old, has always co-operated actively with the officials of the Savannah Automobile Club in promoting past events. To their efficiency in guarding the course in the previous Grand Prize races is attributable the securing of that race and the acquisition of the Vanderbilt Cup race this year. In none of the three big races held in Savannah has there ever been an injury to a spectator, except to one man who received the point of a bayonet in his side when he insisted on attempting to cross the course during the progress of the first Grand Prize race. During the forthcoming races and as heretofore no one will be allowed on or close to the course who is not armed with a pass signed by Mayor Tiedeman and countersigned by Colonel O'Leary, commanding the volunteer militia.

French Grand Prix to Go 1,200 Miles.

The French Grand Prix for 1912 will be a two-days affair, according to the decision just reached by the Sport Commission of the Automobile Club de France, under the auspices of which the race will be held. The rules provide for the negotiating of 1,000 kilometers, or about 600 miles, on the first day, and the same distance on the second day. The times for the two sections to be added and the winner determined by the combined time. The race is free-for-all, regardless of cylinder dimensions, horsepower or weight. For light cars a like event is carded covering the same distance concurrently with the big car race. A prize of \$5,000 will go to the winner, while a number of bonuses and smaller prizes will go to swell this amount considerably. The race will take place early in July, 1912.

Chicago "Insurgents" Want Kelly.

Similar to their action last year the "insurgents" in the Chicago Motor Club have started a movement to put another ticket in the field for the annual election of officers which takes place December 5. When the nominating committee of the club announced that Charles E. Gregory, the present treasurer, would head the ticket to succeed David Beecroft, the "insurgents" at once started a boom for John H. Kelly.

BERT DINGLEY IN FRONT AT PHOENIX

Survivors of Desert Race Meet on Track—Dingley There Beats Herrick But Herrick's Car Scores a Win.

Although out of the running in the Los Angeles-Phoenix road race, Bert Dingley, at the wheel of a Pope-Hartford, easily captured the lion's share of the spoils at the race meet held in Phoenix, Ariz., Thursday last, November 9th. The meet was held under the auspices of the Maricopa Automobile Club and constituted one of the attractions of the State fair then in progress. It was unusual in that all the cars that competed were the same that had crossed the great American desert in competition a few days previously. Some of the contenders who piloted those cars during the 542 miles from Los Angeles, Cal., did not appear on the track, however, electing to trust their cars to other drivers. This was true even in the race at 10 miles for the first four cars that finished the big race, as Swanson, who won, was at the wheel of Herrick's National, while Beaudet drove Bramlette's Cadillac and Guy Irwin steered Ralph Hamlin's Franklin into second and third places, respectively.

In the 25 miles event Bert Dingley gave an exhibition of the speed which enabled him to reach Phoenix a few minutes after Harvey Herrick on the preceding Monday. Dingley swung the Pope-Hartford 25 times around the mile course in 23 minutes and 52.96 seconds, with Herrick a close second. In the Los Angeles-Phoenix race Dingley was the second to check in at the finish, but in order to do so on account of accidents on the road he had to travel all night. This kept him out of the prize money, because in calculating the running time his car was near the bottom of the list. He, however, attached himself to three purses at the track meet, which in a manner helped to relieve his disappointment. Dingley also established a new track record for the mile course of 52.75 seconds and won the free-for-all at 10 miles.

Probably the most interesting contest was the 10 miles free-for-all handicap which was won by Swanson (National), who started from scratch. This was the last event of the day. For nine miles Swanson was hard pressed by Harris Hanshue (Mercer), who had 15 seconds start and appeared to be the winner. In endeavoring to forge ahead on the final turn the Mercer's wheel struck a post and the car swerved into the fence. Hanshue was thrown out and so badly injured that he was taken to a local hospital. In the 10 miles race for small cars Hanshue won easily. He was also third in both the 25 miles free-for-all and the 10 miles free-for-all.

The 10 miles race for cars over 301 inches

displacement was won by Frank Seifert, driving a National. There was some changing of the lead until near the finish, when Seifert put several lengths between the National and Louis Nikrent (Buick) and Guy Irwin (Franklin), who finished in the order named. Fred Fuller, driving a Mercer, skidded into the fence during the ninth mile, badly damaging the car, but escaping personal injury by good luck.

The summary:

One-mile trials—Won by Bert Dingley (Pope-Hartford), time 0:52.75; second, Frank Seifert (National), time 0:53.81; third, Purdy (Midland), time 1:05.56; fourth, W. E. Ferguson (Buick), time 1:05.67.

Fifteen miles for cars which participated in the Los Angeles-Phoenix race, over 301 inches displacement—Won by Frank Seifert (National); second, Louis Nikrent (Buick); third, Guy Irwin (Franklin); fourth, Tom Carrigan (Midland). Time, 13:37.67.

Ten miles for cars which participated in the Los Angeles-Phoenix race, under 300 inches displacement—Won by Harris Hanshue (Mercer); second, William Bramlette (Cadillac); third, William La Casse (E-M-F); fourth, W. B. Brong (Case). Time, 10:34.05.

Twenty-five miles, free-for-all cars in the Los Angeles-Phoenix race—Won by Bert Dingley (Pope-Hartford); second, Harvey Herrick (National); third, Harris Hanshue (Mercer); fourth, Frank Seifert (National). Time, 23:52.96.

Ten miles for the first four cars to finish the Los Angeles-Phoenix race—Won by Swanson (National); second, Beaudet (Cadillac); third, Guy Irwin (Franklin). Time, 10:16.36.

Ten miles, free-for-all—Won by Bert Dingley (Pope-Hartford); second, Swanson (National); third, Harris Hanshue (Mercer); fourth, Johnny Jenkins (Cole). Time, 9:13.36.

Ten miles, free-for-all handicap—Won by Swanson (National), scratch; Ralph Hamlin (Franklin), 15 seconds. Time, 12:07.69.

Considers Northern Route Infeasible.

B. O. Tilden, the New York "sanitation expert," who several months ago started on a transcontinental trip in a Stoddard-Dayton touring car, during which he visited about 40 States and covered 26,000 miles, and who visited Vancouver, B. C., via the Southern route and along the Pacific coast, reached New York on the return trip on November 6th. According to his statement the southern route will be the only feasible one for continental touring, as the hardships met with on the northern route are too great at present to find favor with the average motorist. The return trip from Vancouver led through Washington, Idaho, Montana, and it was while crossing the Cascade, Coeur d'Alene and Rocky mountains that he encountered the worst road conditions, including deep snowdrifts and blizzards.

"EXHIBITIONS" ON A BAD TRACK

Unusual Racing at San Antonio When Real Competition is Forbidden—Fire Marks the Regular Program.

Confronted by the dangerous condition of the Fair Grounds track in San Antonio, Tex., Thursday last, 9th inst., the officials of the San Antonio Automobile Club were compelled to declare all the races off for the day. But, strange to say, races were run, nevertheless. They truly were "exhibition races," which usually are fake races, but on this occasion they lacked their sting. There was a good crowd present, and in order not to wholly disappoint the drivers, after being told that no purses would be awarded, agreed to give as much of the regular program as possible and "not run any faster than the condition of the course would allow them to do safely." Despite these novel conditions the speed was fast enough to make the dust fly on the three-quarters of a mile course, which was very rough. John Raimey, driving a Cino, was more than half the show, as he won all of the "exhibition races" in which he started and did the same thing on Saturday, when the regular program was taken up. A four-mile match between George Clark (Cutting) and M. A. Holmes (Jackson) on each day was won by Holmes. On Saturday a four-hour race was stopped because of an accident to a Flanders driven by John L. Potter. It caught fire, Potter being singed and his mechanic, Walter Regan, seriously burned. At the time the race was stopped Charles Thatcher (Ohio) and C. K. Sutherland (National) were a lap in advance. The accident occurred when the tank was being replenished with gasoline, a spark from the exhaust setting the fuel afire. The car was badly damaged. The spectators showed symptoms of panic and the officials deemed it wise to stop the race. The summary:

Thursday, November 9th.

Twelve miles, Class C, 231-300 inches displacement—Won by John Raimey (Cino); second, William Dunne (Pope-Hartford); third, Joe Nikrent (Staver-Chicago). Time, 19:29.

Four miles, match—George Clark (Cutting) vs. M. A. Holmes (Jackson). Won by Holmes. Time, 6:08.

Twenty-one miles free-for-all—Won by John Raimey (Cino); second, M. A. Holmes (Jackson); third, Charles Thatcher (Ohio). Time, 31:06.

Saturday, November 11th.

Twelve miles, Class C, 231-300 inches displacement—Won by John Raimey (Cino); second, Gus Monckmeier (Staver-Chicago); third, Carl Reeves (E-M-F). Time, 15:49.

Four miles, scratch—George Clark (Cutting) vs. M. A. Holmes (Jackson). Won by Holmes. Time, 4:22.

Twenty-one miles, free-for-all—Won by John Raimey (Cino); second, M. A. Holmes (Jackson); third, Gus Monckmeier (Staver-Chicago). Time, 24:29.

Where Royal Family Is Punished.

In Germany, at least, members of the royal family are not exempt from arrest for violating the speed laws, as was proven recently when the Emperor's third son, Prince August Wilhelm of Prussia, and his chauffeur were haled before a Berlin magistrate and fined \$3.75 and costs for exceeding the speed limit. In court the chauffeur assumed responsibility and the fine was assessed against him, but it was paid by his royal employer. However, although the Prince's personal dignity was saved by the chauffeur in court, the legal scion of the Hohenzollerns will have more difficulty with his father, since the Emperor, displeased with the number of automobile accidents in which members of his family figured, some time ago gave notice that an offending Prince (or Princess) might have the machine confiscated. Before this mandate was issued the Crown Prince, Crown Princess and Prince August Wilhelm had figured in accidents. The latter met with a mishap near Berlin, but his adjutant by personal appeal to proprietors of Berlin newspapers and foreign correspondents succeeded in keeping the incident from His Majesty's eyes. Whether he will be equally successful with the court records remains to be seen, for the Kaiser is not a person to take liberties with.

Clubs and Club Elections.

Motorists of Dakota City, Neb., have organized the Dakota County Good Roads Association with the following officers: President, Ed. T. Kearney; vice-president, Roy Armour; treasurer, John L. Hazlegrove; secretary, O. W. Fisher. The new body will become affiliated with the A. A. A.

The Furnas County Automobile Association was formed last week at Arapahoe, Neb., and will affiliate with the A. A. A. State association. The officers are: President, Dr. J. M. Prime, Oxford; vice-president, T. M. Davis, Bever City; secretary-treasurer, C. D. Blauvelt, Arapahoe.

Under the title of Dothan Automobile Association motorists of Dothan, Ala., have formed a club with the following officers: Chairman, C. J. Faulk; secretary-treasurer, R. W. Lisenby; governors, the officers, D. C. Carmichael, E. R. Porter, W. C. Howell, J. N. Street.

Under the name the Holt County Automobile Club motorists of Holt County, Neb., have formed an association in O'Neill, Neb., with these officers: President, Judge Harrington; secretary-treasurer, Frank Campbell, Jr.

LITTLE NEW AT LONDON

Three New "Poppetless" Engines the Chief Startlers—Worm Drive Makes Great Gains—Small Cars With Small Motors Conspicuous—Few New Bodies.

The annual Olympia show—the Mecca of the British and foreign motorist—which each year is held in London, is over. The doors were closed on the 11th inst., and for the tenth successive year foreign automobile practice was exhibited and admired and criticized during eight whole days and half of as many nights. To the casual visitor who just "dropped in" or the experienced owner—and most of the visitors belonged in the latter classification, for the British motorist takes his motor cars seri-

ously—and at a very much decreased maintenance cost, and this is probably the real reason for their popularity.

Though very nearly every known make of British and other foreign car was exhibited, American products were not overshadowed and loomed large, particularly in view of the fact that their merits are coming to be more and more appreciated by those who a few years ago laughed at what they styled the "American invasion." No less than 15 brands of American cars were on view, including the Overland, Hupmobile, Mitchell, Ford, Regal, Flanders, Maxwell, Krit, E-M-F, White, Stoddard-Dayton, Hudson and Cadillac.

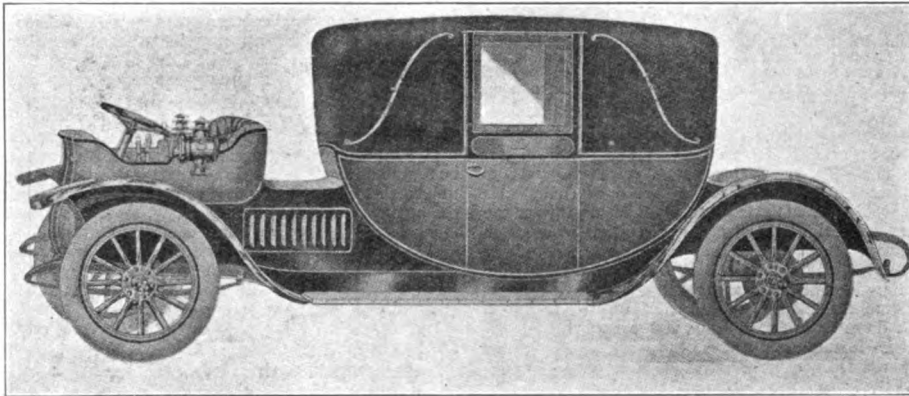
Block construction continues to be the favorite method of forming the cylinders and is particularly applicable to the small, light engines. The tendency, at one time pronounced, toward coring intake and exhaust passages has not been developed to any great extent. Those manufacturers who last year featured this construction

thy of note because of the almost minute size of their cylinders. The first of these is the Delahaye, in which the cylinders measure 75 x 120 mm., or approximately 2 15/16 x 4 23/32 inches. This engine, it may be remembered, created quite a sensation at the last exhibition by reason of the fact that its cylinders are cast en bloc and arranged in V form. The other is the Delage, and in it was revealed the smallest six cylinder engine at the show. Its cylinders measure 65 x 126 mm.—2 9/16 x 5 inches.

The tendency toward long strokes is more in evidence than ever, not a few engines having strokes of twice their bores. As a general rule, however, the usual stroke-bore ratio is one and one-half to one, or in other words, a stroke that is half as long again as the bore. The "square" engine has almost entirely disappeared and with a single exception every new engine that has been brought out is of the long stroke variety. Reciprocating parts have been lightened, pressed steel pistons are gaining in favor and connecting rods have been lightened in several instances by drilling them out, while in one case tubular connecting rods are used.

Of the exponents of the Knight type of sliding sleeve engine, the Daimler, of course, heads the list and the engine remains practically the same except for the addition of what is styled a periodicity damper. In construction the damper is really a miniature multiple disk clutch by means of which the fan driving pulley is actuated; the pulley is attached to the end of the crankshaft. Periodic torsional strains in the crankshaft, which manifest themselves as vibrations at critical engine speeds are damped by the revolving mass of the outer casing, which is really the fan pulley, through its frictional contact with the crankshaft through the disks. The Minerva engine also is equipped with this damper but otherwise remains unchanged. Messrs. Panhard and Levassor have brought out a diminutive Knight engine with its 80 x 130 mm. cylinders cast in pairs. Other Knight engines which were shown were the Deasy and the B. S. A. One of the recent additions to the Knight engine ranks is the Rover, which appeared in single and twin cylinder form, the engines themselves retaining all of the original Knight features without alteration.

Other types of sleeve and rotary valve engines, too, have received a big boost in the past and no less than three new types were shown in addition to the Hewitt piston valve engine which now has been on the market for some time but which has made little headway in public esteem. Of these new engines, the Argyll is the only one in which sleeve valves are used, and it is similar to the Knight except that but one sleeve is used in each cylinder, the sleeve rotating circumferentially backward and forward as it reciprocates. The other two are rotary valve motors, the Darracq



OUTRE COACHWORK—A "PARK ROYAL LANDAU"

ously—a great deal more seriously and with a great deal more of delving into details than does his American cousin—there was much to wonder at even though there was little that was startlingly new. Rather, the show was another exhibit of the traditional conservatism of the populace "overseas."

Fulfilling the promise of last year's show and following the well defined tendency which has been apparent for a number of years, the principal feature was the almost overwhelming number of small cars—two and four seaters, as they are styled "at home," with tiny motors that belie their looks when it comes to a showdown and real power and reliability are required. In a way, however, there is nothing remarkable in this increase in small cars. It is simply the outcome of popular demand. Gasolene costs nearly twice as much abroad as it does in America, and to offset this disadvantage it is necessary that a greater number of miles per gallon be obtained. Another reason is that taxation is extremely high. Also British roads generally are good and it has been demonstrated that light cars with diminutive motors can cover the ground as well as their larger

adhere to it, though the majority prefer to stick to the older method of leaving the manifolds out in the open.

One of the notable variances in the practice of enclosing everything possible is evident in the new Sizaire engine which is shown for the first time. Not only are the intake and exhaust passages enclosed—cored in the casting—but the magneto and carburetter as well are mounted within the crankcase housing, giving to the engine the appearance of a rectangular box, with nothing outside except very small intake and exhaust manifolds. Carburetter and magneto are made instantly accessible by the removal of an aluminum plate which also serves to cover the intake valve mechanism; the exhaust valves are located on the opposite side and are similarly enclosed by means of a removable plate.

Six cylinder engines, of course, are very much in evidence, though the number of manufacturers who list them for the first time shows no remarkable increase. Among the more noted of the six cylinder exponents are such stable products as the Napier, Sheffield-Simplex, Wolseley, Arrol-Johnston, Renault, Belsize, Talbot and Vulcan. Two others are particularly wor-

operating on the Henriad principle and the Itala embracing a single rotary valve for exhaust and intake for each pair of cylinders.

One of the significant features which everywhere was noticeable was the great increase in the number of silent chain cam shaft drives. The movement in favor of this method of construction almost has attained to the proportions of a landslide. The strife for quietness is largely responsible for the movement and manufacturers have not been slow to appreciate the merits of the silent chain in this respect in its application to that part of the engine. Benz, Crossley, Sunbeam, Standard and Singer are among the more prominent engines which are so equipped, the Singer being one of the latest converts. The methods of application differ widely, though practically all manufacturers make provision for adjustment of the chains. In the Crossley, there is an ingenious method for timing the magneto as well as provision for lengthening the chain wheel centers.

Ignition is largely by magneto with variable spark timing. There are quite a few cars in which the spark timing is fixed, and in not a few others automatically controlled advance and retard are provided. Carburation methods show very little difference, the single jet carburetter still being in greater favor, though double and triple jets slowly are becoming more popular. Similarly, thermo-siphon cooling is used mostly but is not confined so strictly to small engines as was the case a year ago. Several manufacturers of larger engines have been converted by the simplicity of the system and have come out strongly in favor of it.

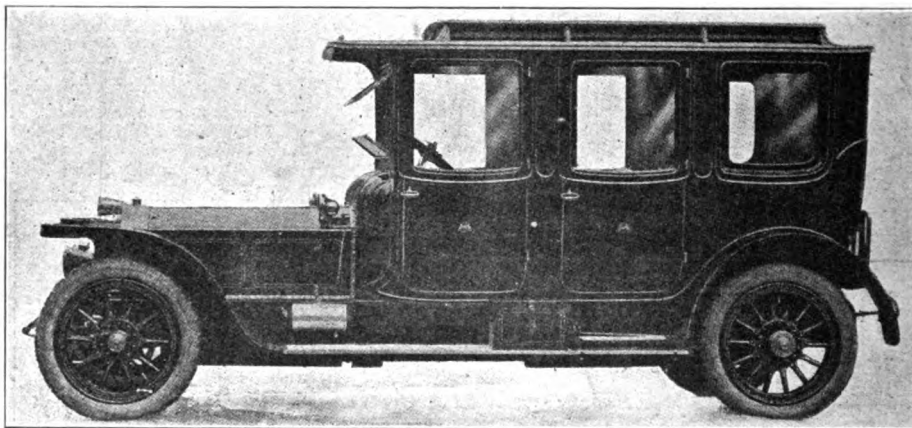
The immensely increased popularity of the worm drive really was one of the greatest features of the show. As the original exponent of the overhead worm, the Dennis heads the list, and the manufacturers of Standard cars as well have adopted the same style for some models, though on others the bevel drive is maintained. Lanchester cars, of course, are worm driven, the worm being below the worm wheel and the Straker-Squire car also embodies the same type of drive, this being the first time that these cars have been so equipped. Minerva cars now may be had with either worm or bevel gear, but as indicating that not all manufacturers believe in the efficiency of the worm drive, it is recommended that the standard type of bevel drive be specified for open cars. As a still further indication of the same nature, Sunbeam cars no longer are worm driven, the manufacturers after having experimented with it for a year having returned to the bevel drive. In spite of these instances, however, the increase in the number of worm driven cars was nothing short of remarkable, and insofar as can be judged by present indications, the increase will be still greater in the future.

Another of last year's tendencies which it was expected would have shown considerable development concerns self-starters. As a matter of fact, the increase in the number of cars equipped with self-starters scarcely is noticeable. Those that have made their appearance are mostly of the compressed air type, and of these the equipment on Adams and Scat cars caused the greatest comment. In both air is compressed by means of a plunger pump run by the engine and stored in a steel cylinder. A button on the dash serves to liberate the air which is led to the cylinders and distributed by means of a rotary valve much after the manner made familiar in America by the Winton Motor Carriage Co. and others. In both, the air also is used for inflating tires, and with the Adams a pneumatic jack for raising the car is included.

As marked as was the tendency toward four speed change gear mechanisms last year, it is even more marked this year, and

usual way by means of spur gears, it being impracticable to employ a chain for this purpose.

As was predicted, the adoption of Knight engines and worm-driven rear axles abroad has resulted in a stimulation of the efforts of manufacturers to quiet other parts of their cars which previously had received little attention of the sort calculated to reduce slight noises. One of the more noticeable attempts of this kind which recently came to light is the adoption by the manufacturers of the Rover car of a silencer attached to the carburetter air intake pipe. As is generally known, all carburetters emit a hissing sound due to the suction of the engine, and this varies in intensity according to individual construction. The silencer is quite similar to the ordinary form of muffler such as is used to silence the exhaust, except that it is minus the customary baffle plates. It is cylindrical in shape, about three inches in length and approximately twice the diam-



ONE OF MULLINER & CO.'S LIMOUSINE BODIES—THE "CLERESTORY"

it almost might be said that nine cars out of the proverbial ten are so equipped. As a general rule they are of the sliding gear type with gate change and are mounted centrally on the chassis. Rear axle mounted gear boxes are not very much in favor, though the manufacturers of the Sheffield-Simplex cars have been more than ordinarily successful with this arrangement.

Though it was hinted during the last Olympia show that the coming season would show a considerable increase in the number of cars equipped with silent chain "gear" boxes, the forecast was premature. Only one chain driven change gear mechanism made its appearance and it was in a Maudsley car. The principle of the mechanism is fairly well known, of course, because of its continued use with such marked success by the London General Omnibus Co. In the Maudsley box, however, four speeds ahead and reverse are provided, instead of the three and reverse obtainable with the other. Also the Maudsley mechanism differs from the other in that there is no direct drive, all four speeds being obtained through the medium of the chains. Reverse is obtained in the

eter of the intake pipe to which it is attached. Air is admitted through a number of small round holes in the "barrel" of the device, and it is claimed that the hissing is effectually silenced without impairing the efficiency of the carburetter.

Wire wheels continue to enjoy the favor which steadily has been increasing, and still are one of the distinguishing marks by which a foreign car can be "spotted" immediately. Though front wheel brakes still are used on a number of cars, manufacturers have not been falling over themselves in efforts to adopt them and no new applications have made their appearance. As a matter of fact, one manufacturer has discarded his front wheel brakes and returned to the older method of locating all brakes on the rear wheels.

Regarding body styles, there is no doubt but that the influence of the torpedo and high closed front effects is being felt to a greater extent now than ever before. Owing to the diminutive engines that are used to a great extent it is not always possible easily to reconcile the apparently large and heavy bodies and the small engine hoods. Consequently tapered hoods and long

skuttles are the rule, and by judiciously proportioning fenders and running boards pleasing exteriors have been evolved, though many of the cars still retain the unmistakably British "dumpy" appearance.

Inside the cars greater attention has been given the comfort of passengers; seats are better proportioned and are lower than heretofore. The angle at which the seats are set also has been modified in the majority of cases so as to permit of an easier, lounging position. It is in the closed cars that the greatest amount of improvement is noticeable, however. They are better proportioned throughout and the appearance which some of them presented or having been merely "slapped on" to any old chassis has been lost to a considerable degree.

Of freak bodies there were few, the one which attracted the most attention being shown by Brown, Hughes & Strachan. It is styled a "Park Royal Landau" and resembled nothing ever before turned out by

COFFIN TALKS ON "CLEAN DESIGN"

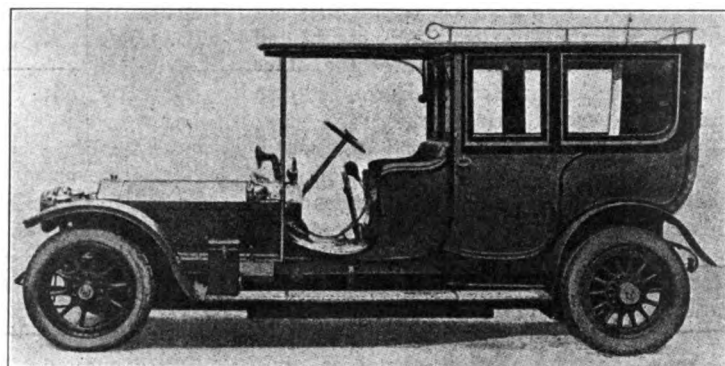
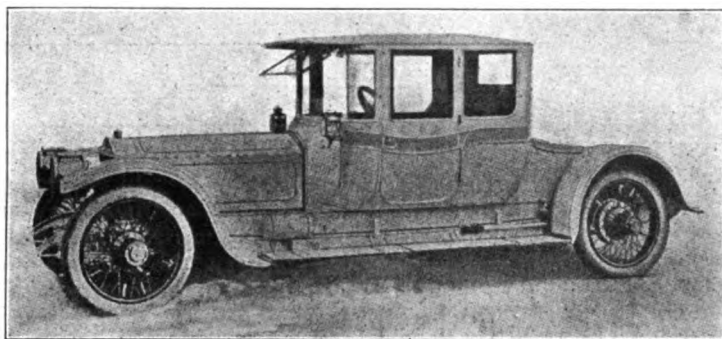
At London Session American Engineer Tells British Brethren What It Implies—An Epochal Occasion.

It is not often that the "high point" of an undertaking is reached almost before it has commenced. In this respect the visit of the Society of Automobile Engineers to London, which in itself is epochal, was unusual. The Americans landed in London on the 7th inst., and the very next day they reached the "high point" of their visit—the joint technical meeting with the Institute of Automobile Engineers.

There may be individuals who consider that the Olympia show, or the banquet tendered by the Institute on the 9th, were higher points, but when a representative number of a representative engineering and

poraneous and general in character, and knowingly or unknowingly it struck the Britishers where they are weak. They love "fixings" and lots of them, and they appear to love ponderosity, and when they combine both they seem to imagine that money can buy no more.

When Coffin took as his text "Clean Design" he therefore struck at cherished traditions. For "clean design," he told his hearers, meant simplicity, the elimination of every unnecessary part in every feature of the chassis. Mr. Coffin stated that "clean designs"—cars free of rods and clattering of iron and steel—were an absolute certainty within the next few years, according to the trend of the principles of engineering practice. He expressed the belief that this constantly increasing simplicity would make the automobile more easily understandable to men not of a mechanical turn of mind and render it possible for women to drive the gasoline car, and that "clean design," like the elimination of



STANDARD ROLLS-ROYCE LIMOUSINE AND AN ENCLOSED DRIVE "TWO SEATER"

an automobile manufacturer. In appearance it is an old-style park landau of the early Victorian period, the rear part of the body containing two pairs of seats arranged so that the occupants face each other. This portion of the body is equipped with a special sort of double landaulet top which when raised completely encloses the rear seats.

As usual, inside driven coupes occupied a prominent place in the show though there was little of novelty apparent in any of them. Limousines, too, were well represented, and one by Mulliner & Co., styled a "Sociable Limousine," possessed a number of unusual features. As its name suggests, all the seats are enclosed, though the body differs from the usual enclosed limousine in that there is no partition between the driver's compartment and that reserved for the other passengers. The skuttle dash is exceptionally deep and the glass front is V-shaped to reduce wind resistance. But two doors are provided, one on each side, and either gives access to all of the seats, three of which are of the swiveling armchair variety. The driver's seat also is an armchair and it is adjustable so that the easiest driving position can be obtained.

industrial organization crosses the sea not merely to exchange courtesies but at a joint session to exchange ideas with the trained representatives of a similar body representing another nation—when this occurs, it is in the nature of an occurrence so rare that banquets, visits to public exhibitions or private factories appear commonplace by comparison. And at the joint session in London on the 8th it was an address by a member and a former president of the American Society of Engineers, Howard E. Coffin, president of the Hudson Motor Car Co., of Detroit, that constituted the feature of the occasion.

It is a habit of most Englishment to believe that most of the world's best thought and best productions are confined to their "tight little isle." But somehow the members of the Institute of Automobile Engineers had permitted themselves to at least fancy that while in all else that pertains to automobiles England leads the world, the Americans really knew more than a thing or two about chassis design. Accordingly they suggested that a member of the S. A. E. address them on that subject, and Howard E. Coffin, who really knows a thing or three about it, was delegated to deliver the address. It was largely extem-

poraneous and general in character, and knowingly or unknowingly it struck the Britishers where they are weak. They love "fixings" and lots of them, and they appear to love ponderosity, and when they combine both they seem to imagine that money can buy no more.

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the useless scaffolding of a building, meant the decrease of difficulty that some who might own cars fear they will encounter. The fact that this trend toward simplicity also must decrease the upkeep cost of the automobile also augurs for an enlarged field of usefulness. Mr. Coffin remarked that in the greatest car he himself had built he had found upkeep cost greatly decreased by the elimination of a thousand parts. He said that the big item in motor car building is labor, and with the elimination of rods and other features that could be dispensed with it was possible to triple the quality of parts that are used.

He said this would insure an immense saving and he evidenced his statements by recounting his experience building his latest automobile, in which nearly a thousand dollars a car was saved the ultimate purchaser by "clean design."

However, the greatest item, in his opinion, is the saving in upkeep cost and the ease of making adjustments because "clean design" places each part within ready reach of the owner, thus doing away with the task of tearing down a car for the purpose of adjusting or replacing some part of its mechanism.

ACCESSORIES AT THE LONDON SHOW

Influx of Electric Lighting Systems the Chief Feature—Real Novelties, However, Were Few and Far Between.

In the line of accessories the Olympia show offered little that could be styled new or novel. It is true there were a number of "novelties" on view, but on closer examination these resolved themselves into mere minor improvements of well-established principles.

Especially was this notable in the various "new" carbureters. The Welsh carbureter, for instance, was fitted with a neat device, which permitted of the throttle being moved past its closed position, thereby admitting pure air to the cylinders, when coasting down hills. Another system, called the T. & M. multiple jet, is fitted with a narrow by-pass so that the engine does not stop, even if the throttle is fully closed and the car standing still. None of the other carburation devices exhibited strayed from the beaten path of former years.

That there would be a flood of dynamo lighting systems on view was a foregone conclusion after the great strides made in this line during the past year. No less than seven manufacturers showed systems of electric lighting outfits, but none of them brought out any idea or arrangement that could be considered novel. In the matter of headlight installation, however, one manufacturer, Longstreths, Ltd., has hit upon the happy idea of providing long and short focus lights by mounting two bulbs side by side in the same headlight, one of them being suited for long distance, the other spreading the rays to the sides of the road.

It is the little "kink" in the most insignificant place that sometimes proves of real value to the man driving his own car. Such a happy idea is the Rotax pressure pump, which is swiveled at the bottom, and which turns itself off when set upright in its clip on the dash. Another small but important improvement is made in the Ashcroft valve-grinder, in which the direction of rotation is reversed at each revolution, but which nevertheless makes slow positive progress in clockwise rotation, in order to prevent scoring through working continuously on one spot.

To use a windshield for other purposes when the car is standing still is the rather freakish idea of Auster, Ltd., which firm offers a hinged shield that can be so manipulated as to form a very substantial table for the people in the rear compartment of the car. Another windshield, manufactured by Russell & Co., Ltd., is operated by a single worm and wheel and can be worked by the driver's left hand.

What is called a "two ignitions" plug is offered by Lodge Bros. & Co. It really

consists of two sparking plugs in one, the central portion containing two separate electrodes, each of which terminates in a nickel ring. The outer casing is fitted with a sparking point opposite each ring. The plug is used for combined magneto and battery ignition. In this section belongs the new Bosch magneto, which is entirely enclosed and has its working parts protected from dust and damp by felt washers where the casings join. Two special points are the design of the equipment on the control coupling and the serrated poles that give easy starting. Brooks & Co., Ltd., also are offering a new magneto, which is constructed on the basic principle of the well-known Mea. In this magneto the pole pieces rotate with the advance and retard of the contact breaker, causing the break always to occur when the current is at its maximum intensity. Other features in its construction are the absence of gearing in the two-to-one reduction drive for the distributor and the detachability of the contact breaker without the removal of any nuts. The High Tension Co. shows its C. J. L. mica magnetolite, which has permanent magnets. The fixed capacity of these magnets limits the output at high speeds, owing to the natural demagnetizing effect of the armature reaction.

In the line of demountable rims J. Liveridge & Son, Ltd., offer a new segmental rim which may be carried in the tool box. It is made in four segments, so that covers may be fitted over it without straining the bead of the tire.

The gyroscopic Non-Skid, which was described in *The Motor World* a few months ago, made its first appearance at any show. It is a gyroscopic flywheel mounted in front of the engine and driven by a belt from the fan pulley. It was shown by Vieo, Ltd., alongside of a resilient wheel, which was claimed to have been run on a heavy car for two years.

Of accessories made in the United States, the following were shown at Olympia: Klaxon horns, Rushmore lamps, Simms magnetos and dynamo-lighting outfits, Stewart & Clark speedometers, Gleason-Peters pumps, and Goodrich tires.

To Produce \$650 Union at Columbus.

With the object of manufacturing a small touring car of 25 horsepower to sell at \$650, the Union Sales Co. has been formed at Columbus, Ohio, with headquarters at 61 East Spring street. Several of these cars already are on the streets, while 25 more will be ready for delivery early in December, according to the statement of J. W. O'Brien, the general manager. The car, which is styled the Union "25," has a four-cylinder motor, $3\frac{3}{4} \times 4$, cylinders cast in pairs; Bosch magneto; Schebler carburetter; three speed selective sliding gear with center control; pressed steel channel frame; 100 inch wheelbase; multiple disk clutch, running in oil; semi-floating rear axle, and 30 x 3 inch tires.

AMERICAN CARS FOR AUSTRALIANS

Why They Are Preferred by Residents of the Antipodes—Fast Crowding Out Even British Productions.

Some of the reasons for the ever-increasing popularity of the American motor car on the island continent are very aptly outlined in a letter from an Australian owner of an American car, to an English paper. In his commendation or criticism of motor cars in general, and American cars in particular, the correspondent calls attention to the rate at which American cars arrive in Sydney and says that unless English manufacturers get busy at once there soon will be more Yankee cars in the Commonwealth than there are British.

"Now, what are the reasons for this state of affairs?" he asks, and proceeds to answer the question himself. "In the first place, the agents get a much quicker return for their money by handling a Yankee car than an English one. Incidentally it may be mentioned that the general opinion seems to be that the American cars are packed for shipment much better. Again, a purchaser can generally rely on getting immediate delivery of an American car, whereas if he wants a certain home make he may have to wait three months or longer. The American ports are much nearer Australia than the English ports are and Sydney is the first port of call of the American boats; hence the fact that there are many more American cars in New South Wales than in Victoria.

"The fact that some of the roads in the United States are as bad as those in Australia suggests that American cars should be suitably sprung for these roads, and it seems to me that here we have one of the chief reasons for the American car's popularity. An intending purchaser who knows nothing about motor cars is first taken for a run over a bad road on an English or Continental car, and then goes over the same road on an American car. Now, unless the European car is an exception to the rule, or the American car is, the former will be purgatory and the latter bearable." He adds that the only car he feels comfortable in is an American one.

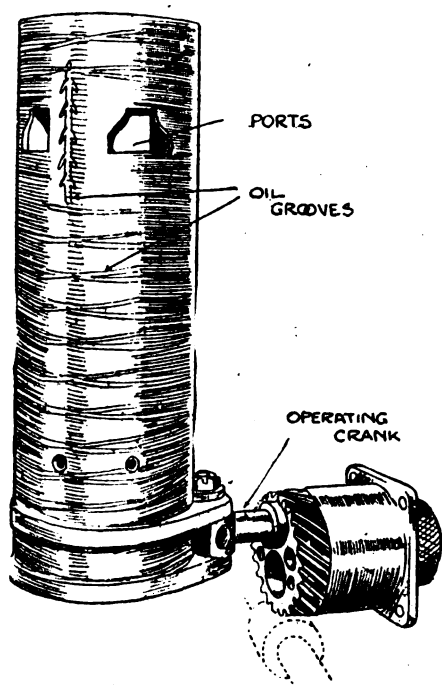
California Stock at \$1 Per Share.

The California Motor Car Co., which was recently organized in Oakland, Cal., and which purposes manufacturing the Pacific Special touring car, has "gone the limit" in offering its shares to the public. The company is capitalized at \$250,000, in \$1 shares, which are offered at par value in blocks of 25 shares and upward. In advertising them the company makes use of the "60 to 1300 per cent. dividends" catchline used by many promoters located nearer to the Atlantic than the Pacific.

ELIMINATING THE POPPET VALVE

Details of New Foreign Engines in Which the Elimination has been Effected—
Wide Range of Ingenuity.

Prognostications, made at the time of the adoption of the Knight sleeve valve engine by the English Daimler company, to the effect that before long other types of "poppet-valveless" motors equally as efficient and reliable would be numerous, have been fulfilled in a measure. Within a very short time no less than three new engines employing valves of other than the poppet variety have made their appearance on Continental markets, and thus part of the prophecy, at least, has been realized. As



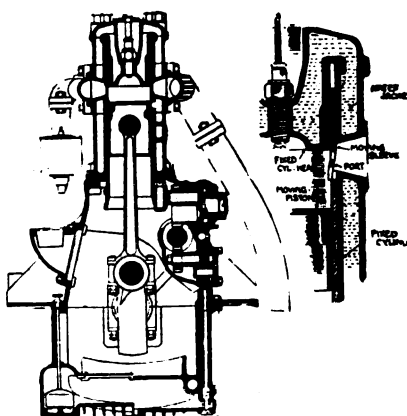
ARGYLL SLIDING SLEEVE

to whether they will prove as good or better than their forerunner of the so-called "valveless" type remains to be demonstrated. In the meantime three big European manufacturers are devoting considerable of their time to the production of these three different types of engines, and they are Messrs. Argyll, Ltd., of Scotland, Darracq & Co., of France, and the Itala factory in Turin, Italy, which with the older Hewitt piston valve engine, constituted the most radical motors in evidence at the Olympia show.

Two of the engines, the Argyll and the Itala, are new, the former being somewhat like the Knight engine and the latter being peculiar to the Itala factory in its employment of a single rotary valve for each pair of cylinders. Though the Darracq is not exactly new inasmuch as it operates on the Henriod principle, this is the first time that an engine of this type has been regularly

supplied as a stock model, and for this reason it is of interest.

It has been known for some time that the Argyll factory was actively engaged in the perfection of the new engine, but only recently has its development reached the stage where the engine has become marketable or did it become known that licenses to build engines under the Argyll patents had been granted to Piccard-Pictet, of Geneva, Switzerland, and to the Canadian



ARGYLL ENGINE SECTIONED

Fairbanks-Morse Co., of Toronto. It also is stated that negotiations are under way for the production of the engine in the United States.

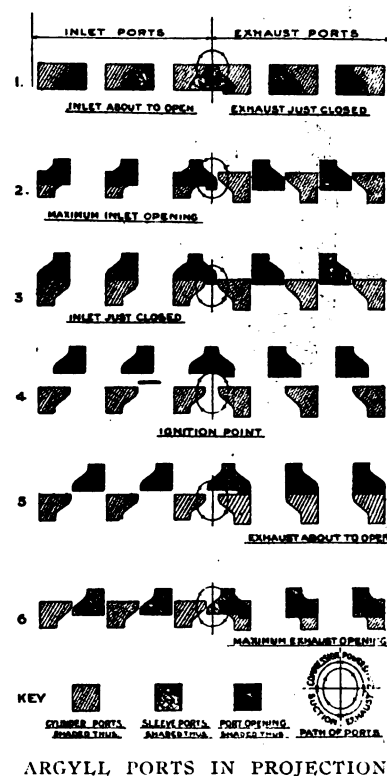
The principal point of difference between the Argyll sleeve valve engine and the Knight engine is that the former employs a single sleeve to do the work for which two are required in the Knight engine. As in the Knight engine, the sleeve serves as a liner to the cylinder and on it the piston slides. But instead of a straight up-and-down movement of the sleeve, such as is used in the Knight engine, the sleeve turns on its axis, as well, with a sort of corkscrew movement backward and forward; which is to say that as the sleeve ascends it turns to the right and as it descends it rotates to the left, so that any point on the sleeve describes an ellipse during two revolutions of the crankshaft.

The four sleeves in a four-cylinder engine are actuated by skew gearing from a ball-bearing-mounted shaft which extends the length of the engine and occupies much the same position as the cam shaft in the ordinary type of poppet valve engine. The shaft is driven at crankshaft speed by means of a silent chain, the necessary reduction in the speed of the sleeves being made in the skew gearing by which they are actuated. In addition to acting as gears, these parts also serve as crank disks and impart the rotative motion to the sleeves, the method of connection being shown in the accompanying illustration.

Instead of the single intake and exhaust port common to the Knight type of engine, the Argyll has three of each, which are arranged in the same horizontal plane, the combined area of the three being equal to

a single large port; all three intake ports open simultaneously, as do the exhaust ports. In the sleeve there are but five ports, the center port being of a slightly different shape than the others and serving for both intake and exhaust.

It is in the shape of the ports that a great deal of the ingenuity of the engine lies, and to assist in making an explanation of the functioning of the valves more clear the shape of the sleeve ports and those in the cylinder are reproduced in projection in the accompanying diagram. At the commencement of the inspiration stroke, when the piston is nearly at top dead center, the sleeve is at its lowest point. As the piston descends the sleeve rises, and at the same time is rotated until its ports register with those in the cylinder. On the com-



ARGYLL PORTS IN PROJECTION

pression stroke the sleeve continues to rise, until, when the charge in the cylinders is fired, its ports are sealed behind two rings in the cylinder head, which take the place of the "junk" ring in the Knight engine. The ports are thus protected during the greatest heat of the explosion and compression loss is prevented by the sealing of the sleeve ports.

As the piston descends under the action of the exploded charge the sleeve also descends in its spiral path until the piston has reached the lower extremity of its stroke and has started to ascend, when the exhaust ports in the sleeve and cylinder register. One of the peculiar points of the valve action is that, as is common with reciprocating movements, the speed of the parts is not constant at all times, but varies according to the position of the reciprocating crank. The ports therefore open and close quickly, but during the time of their

greatest opening and when they are closed there is an appreciable lag, permitting maximum inspiration with quick closing of the intake ports and quick opening of the exhaust ports after the explosion, with a slight halt during combustion.

Contrary to what might easily be expected, little difficulty is experienced in lubricating the sleeves and cylinders, this being due to the elliptical motion of the sleeves, which tends to distribute a thin film of oil over their whole surfaces. By means of a pump actuated from the same shaft as the sleeves, oil is forced under pressure to the main engine bearings and to the sleeves, other parts of the engine's internal economy being lubricated by splash. The thermo-siphon method of cooling is used, and though it might appear that there would be difficulty in maintaining the engine at a sufficiently low tem-

perature it is no greater than in the case of the Knight engine. Rather it is less because of the presence of only the one sleeve instead of the two which are used in the Knight engine.

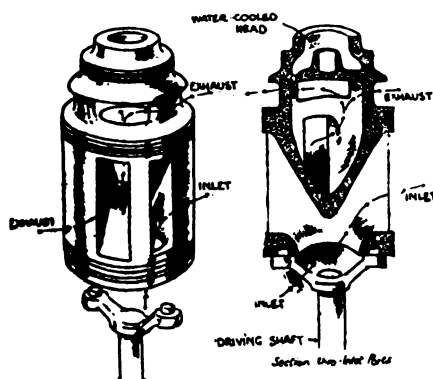
In place of the usual poppet valves, the Darracq motor employs a long cylindrical member carried horizontally within the cylinder casting, the cylinders being cast en bloc. This valve or distributor is actuated by means of enclosed gearing from the end of the crankshaft. The distributor is a single casting carried on ball bearings, and is annular in shape except opposite the port openings, where its section resembles a D. When the distributor is rotated the D sections register with the intake and exhaust ports alternately, permitting the same functions common to the ordinary four-cycle engine.

One of the important features in connection with the construction of the engine is that when the explosion takes place the distributor is completely isolated from the combustion chamber and the force of the explosion cannot react on the valve. This has been achieved by placing the distributor some distance from the top of the cylinders, so that the piston does not uncover the ports until it has completed approximately one-sixth of its downward travel. Though this location of the distributor results in a

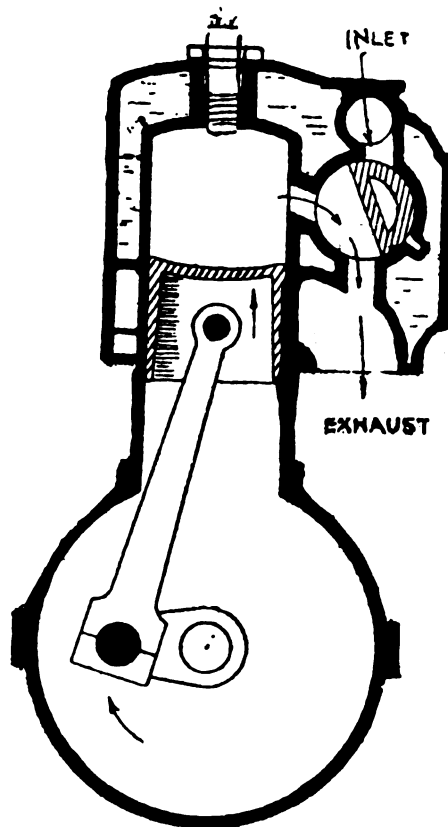
portion of the burnt and burning gases being retained in the combustion space slightly longer than is usual with other types of engines it is claimed that this actually has a beneficial effect on the running of the engine and that fuel economy is increased thereby.

Lubrication is effected by means of an ordinary constant level pump-over splash system. Collector rings on the crankshaft distribute the oil to the main engine bearings. In this engine, too, thermo-siphon cooling is used, and in this respect it is a departure from former Darracq practice.

In the new Itala engine, which is rated



ITALA ROTARY VALVE



DARRACQ-HENRIOD ENGINE

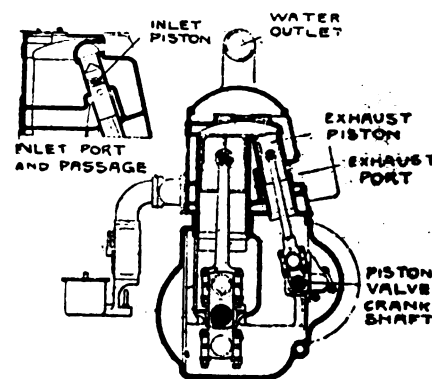
at 35 horsepower, the cylinders are arranged in pairs, and for each pair a single vertical rotary valve serves for both intake and exhaust. The valve for each pair of cylinders is arranged between them in what to all intents and purposes is another cylinder cast integral. This cylindrical valve chamber is approximately four inches in diameter, and in its sides there are two narrow slits, each communicating directly with the combustion chamber to which it is adjacent. The intake pipe leads from the bottom of the valve chamber and the exhaust from the top.

Located in the valve chamber is the valve proper, which is in the form of a close-fitting piston which rotates in constant contact with the valve chamber wall. In the valve there are four slots, two of them communicating with the intake opening in the bottom of the valve chamber and serving as intake valves, and the other two

communicating with the exhaust opening at the top. The construction of the rotating valve is such that the two intake ports are separate from each other, as are the two exhaust ports.

The reason for the two intake and two exhaust ports in each rotary valve is that the valve is operated at one-quarter engine speed and on one occasion one intake port and one exhaust port serve both cylinders, one after the other, and on the next occasion the other intake and exhaust ports serve. In this way the speed of the rotating valve is kept low, while at the same time alternating the openings through which the gases pass gives the valve greater time to cool and keeps temperature down. There is only one port in each cylinder, and this serves alternately for intake and exhaust, the rotating valve only having a multiplicity of ports.

The rotating valves are provided at their



HEWITT PISTON VALVES

tops and bottoms with piston rings to prevent the leakage of gases and are driven by vertical spindles through skew gearing. The actuating shaft also serves to drive the magneto and water pump, and in turn is driven by means of a silent chain. Owing to the large area of the valve and its slow speed lubrication is rendered easy and is carried on principally by splash.

Regarding the effect of side pressure on the rotary valve, this trouble having been the bugaboo of practically all other such mechanisms, an ingenious method of eliminating trouble is revealed. Through the valve a small hole is drilled, and in the valve chamber wall behind the hole there is a recess so that the force of the explosion is balanced.

The novelty of the Hewitt piston valve engine has worn off during the two years it has been in service, and it has settled down into an accepted type. It is used in Crowdy cars and in principle it is exactly the same as a poppet valve engine except that the poppet valves are replaced by miniature pistons, one serving to uncover the intake ports and the other opening the exhaust ports. The pistons are actuated by means of cranks from a shaft which occupies much the same position as the camshaft in the ordinary type of poppet valve engine and is driven by a silent chain.

OFFERS CHAINS OR SHAFT DRIVE

**Simplex Adheres to Its Former Practice—
Few Changes Found Possible—Make-
up of the Line.**

Though most manufacturers prefer to devote their entire attention to either shaft or chain driven models, the Simplex Automobile Co., New York City, remains in the ranks of those whose cars may be had with both styles of final drive. The 38 horsepower shaft driven chassis which made its debut last year and which since then has more than lived up to the Simplex reputation, will be continued for the coming sea-

It differs from the other Simplex models in that it is shaft driven, of course. Also it embodies a long stroke motor, the dimensions of which permit of no quibble as to the propriety of the designation; it measures $4\frac{7}{8}$ inches bore and $6\frac{1}{2}$ inches stroke. Conforming to the general Simplex design, the four cylinders are cast in pairs with the valves on opposite sides and interchangeable. In the design of the motor particular care has been taken to insure the exclusion of dust and dirt from the bearings, which are so constructed that the exudation of oil is practically impossible. Simplicity is the keynote of the design; plenty of room under the bonnet, widely separated auxiliary apparatus and a general air of extreme accessibility are the most

hubs steel castings. Liberal sized D. W. F. ball bearings are used in both sets of wheels. In the arrangement of the springs, the manufacturers have adhered to general practice in the use of semi-elliptic members in front and three-quarter in the rear, it having been found by experience that this construction permits the greatest resiliency without promoting the faults which arise when other arrangements are used.

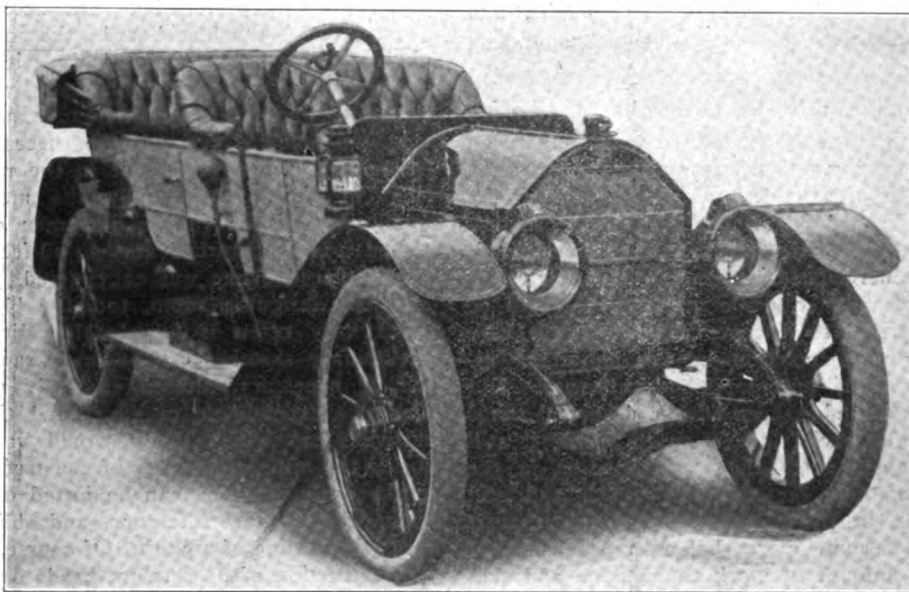
Both sets of brakes are located on the rear wheels, and in this respect the shaft-driven chassis differs materially from the older models. They are lined with an asbestos composition and provision is made for easy and quick adjustment. The service brakes are of the external contracting variety operating on drums $14\frac{3}{4}$ inches in diameter and $2\frac{3}{4}$ inches wide, and the emergency brakes are internal expanding of practically the same dimensions. The weight of the chassis on the tires is 2,700 pounds.

In all, six styles of body are regularly supplied, the wheelbase being the same in each case—127 inches. These six types embrace a two-passenger roadster, four-, five- and seven-passenger touring cars, a landaulet and a limousine, the prices of the two latter cars complete being \$5,800, and of the other four, \$4,850; the price of the chassis with tires and demountable rims is \$4,000.

As has been previously intimated, the 50 horsepower chassis and the 90 remain practically unaltered and are familiar to the motoring public by reason of their years of enduring service. The "50" is regularly supplied in two chassis lengths—124 inches wheelbase and 129—to accommodate the five-passenger touring car, small tonneau and small enclosed bodies, and seven-passenger and large enclosed bodies, respectively. In general design the "50" and "90" chassis are quite similar to the newer shaft driven model, the principal differences in construction being the use of double differential service brakes located on either side of the transmission case and operating on the cross shaft which mounts the driving sprockets, and motors of different dimensions.

The cylinders of the 50 horsepower motor measure $5\frac{3}{4}$ inches square, the valves being on opposite sides and the cylinders cast in pairs. In profile and construction the larger motor is exactly like its smaller brother, practically the only difference being in the cylinder measurements, which are $6\frac{1}{10}$ inches bore and $5\frac{3}{4}$ inches stroke. The construction throughout the rest of the chassis is identical, though the one mounting the larger motor is slightly heavier, of course. In both, ignition is effected by means of Bosch high tension magnetos, instead of the Mea which is used on the smaller chassis; otherwise these two motors conform in detail and appointments to that used in the 38 horsepower car.

The 50 horsepower chassis, with de-



THE SIMPLEX 38 HORSEPOWER, SHAFT-DRIVEN MODEL.

son, as will the 50 and 90 horsepower chassis, both of which are chain driven models.

Having passed through its novitiate, though the past year scarcely warrants the term, inasmuch as the marketing of the car was preceded by several years of careful study and experimenting, the shaft-driven model remains unchanged in a fuller sense of the word than generally is understood. A slight alteration in the pitch of the timing and transmission gears, by which they are rendered more quiet, is the only change that has been made. In the 50 and 90 horsepower chassis even less change has been made.

Naturally, considerable interest attaches to the two larger chassis as being of the few remaining exponents of chain driving. Principal interest, however, centers in the newer model which was at the time of its inception a radical departure from previous Simplex practice. Though it is distinctly a new model, embracing a number of features not found in either of the others, it still retains all the Simplex earmarks of quality and in it is reflected the same careful attention to details.

noticeable features, barring the solid and substantial construction which everywhere is visible.

Ignition is effected by means of a Mea high-tension magneto with advance and retard control lever within easy reach of the driver's fingers on the steering wheel. The cooling apparatus embraces a centrifugal pump, actuated from the timing gear train, and a honeycomb radiator, the fly-wheel spokes being cast in the form of fan blades, thus eliminating the necessity for any other cooling adjunct. Lubrication is by a direct-driven mechanical oiler which forces the oil to all main and minor bearings.

The change gear mechanism operates selectively and permits of four speeds forward and reverse, the fourth speed being direct drive. Interconnecting it with the drive shaft, the clutch is of the multiple disk variety, having 34 hardened and ground saw-steel disks. The drive axle is semi-floating and mounts wheels which carry 36 x 5 inch tires; front tires are 36 x 4. Particular attention is directed to the construction of the wheels themselves, the hub flanges being drop-forgings and the

mountable rims and tires, lists at \$4,500. The prices of the four-passenger small tonneau, five-passenger touring, seven-passenger touring, limousine and landaulet are \$5,499, \$5,500, \$5,700 and \$6,400, respectively; two-passenger roadster bodies are supplied at from \$600 upwards, according to the requirements of the purchaser. The price of the 90 horsepower chassis with tires and demountable rims is \$5,350, roadster bodies being fitted at prices that range upward from \$600. The four-passenger small tonneau touring car and the five-passenger standard touring cars are priced \$6,250 and \$6,450, respectively.

Orders Distinctive Colors for Taxicabs.

In order to facilitate the identification of taxicabs from town cars and private landaulets, especially at a distance, the Berlin Commissioner of Police has issued an order directing that henceforth all public taxicabs must be painted in certain colors. These colors are:

Gasolene cabs—dark brown with narrow bright-red striping around doors, wheel rims and spokes.

Electric cabs—ivory white, with narrow black stripes.

All cabs, regardless of motive power, must be fitted with clear beveled glass windows; no "frosted" or colored panes are permitted.

The order of the police commissioner was somewhat influenced by the flowers, grapes, arabesques and landscapes painted upon many of the cabs by their respective owners—which fantastic paintings, while enlivening the traffic picture, did not tend to raise the Berlin taxicab in the estimation of visiting foreigners. The latter's sarcastic and flippant remarks in the columns of the foreign press finally "got on the commissioner's nerves" and the order for distinctive color work went forth. What caused the order for "clear" glass panes must be plain to anyone familiar with metropolitan "night life."

Best Proof of Ignition Improvement.

"If anyone desires to discover how great is the part played by ignition systems in the success of a motor car, and how greatly such systems have been improved during recent years, he has but to apply a modern coil or a modern magneto to almost any of the old cars which are still running around," was the remark of Howard Carter, of the Carter Motor Car Corporation, Washington, D. C., who was in New York during last week. "Of course, engines have been improved," he admitted, "but the principle has remained the same and the improvement has not been sweeping. It was the ignition systems that caused most of the trouble in the old days, and the best proof of it is the number of old corks using old engines which have been revolutionized, or regalanized, so to speak, simply by fitting them with modern ignition systems."

BLACKBOARD TO CHECK PRODUCTION

How School Adjunct Helps to Solve Various Factory Problems—Places Blame Where It Belongs.

Those who have particularly good memories will have little difficulty in harking back a few years to the days when they attended school and the favorite method of expounding difficult problems was by means of the blackboard. Also it was common practice, and is yet, to post on the blackboard a schedule of the work to be done during stated periods, together with a resume of the materials and books necessary. Thus could earnest pupils, and those who were not so earnest, know at all times what was expected of them during certain working periods, and those who fell behind these expectations were held to an accounting.

But the sphere of usefulness of the blackboard is not confined to the school-room. It has become very much more commercialized within the past few years and many erstwhile schoolboys would be surprised to discover it occupying a very important position in the important industry of automobile manufacture. But though it has been advanced several rungs up the social ladder, so to speak, it still occupies much the same position in the automobile factory that it did, and still does, in the school-room, except that it has become more than ever a tell-tale of the amount of work to be done and that which has been accomplished.

Although many persons engaged in the industry do not know it, in many of the larger automobile factories there is not only one blackboard—there are a number of them. They are scattered throughout the length and breadth of the factories and are consulted continually, for on them appears a record of the amount of work that has been done during stated periods in the particular departments in which they appear. It is one of the duties of the foreman, or department head in charge, to post the daily output of his department; a glance suffices to tell the "man higher up" the progress of the work, and whether the output is up to the required schedule. In other words, the blackboards "keep tabs" on every step in production operations.

Though this blackboard system is in use in a number of factories and its merits are realized and it is coming into greater use almost daily, it is doubtful if it has been more developed than in the factories of the Studebaker Corporation in Detroit. Every department has its blackboard. Illustrative of the modus operandi of the system, the blackboard in the chassis assembling department at one time indicated that the scheduled output of 40 finished

machines a day had not been maintained by five cars.

Tracing the reason for the discrepancy, it developed that it was due to a shortage of five differentials. This shortage appeared on the blackboard in the differential assembling department and was explained by the foreman, who claimed a lack of differential pinions. The deficiency showed successively on the blackboards in the gear hardening department, the gear cutting department, and the turning department. The foreman of the turning department placed the blame with the drop forge shop in failing to supply a sufficient number of gear blanks and the trouble finally was located there. The die used in forming the gear blanks had been damaged and the reserve die was not performing satisfactorily. Thus, through the blackboards, the source of the trouble was traced quickly, without the necessity for entering into lengthy explanations, and the production manager was enabled to get up the necessary "steam" to remedy the fault in the minimum of time. Incidentally the mental equilibrium of the various workmen concerned was undisturbed and no ill-feeling for misplaced blame was engendered.

In the designing room, too, the blackboard very often is a valuable adjunct. Preliminary sketches can be made rapidly and, if necessary, altered endlessly with the least expenditure of effort and time; elusive ideas which likely would vanish during the ordinary process of construction in the drafting room, can be jotted down instantly for future reference—and obliterated with a wipe of a cloth. Of course, for the instruction of department heads or ordinary mechanics, the blackboard is the method par excellence, for the assimilation of knowledge through pictures still is easiest. It is in the other field, however—that devoted to the recording of work done and to be done—that the blackboard is most useful, and there is no other system as simple and as efficient or so available.

Extent of Platinum's Preciousness.

In Berlin, Germany, which is one of the centers of the platinum trade, the price of that precious metal stands at about \$650 per pound. It is undoubtedly the most expensive material which enters into the make-up or operation of a motor car. Unceasing efforts are being made to find a substitute, and practically all of the magneto manufacturers each week are prevailed upon to put one or more of such substitutes to the test, but it has been invariably found that no "just-as-good" will serve the purpose for magneto usage. At the price quoted, platinum, of course, runs quickly into money, as H. E. Krause, superintendent of the production department of the Remy Electric Co., remarked only a few days ago when there were received at the Remy factory two packages as large as a man's two fists, which represented a cost of close to \$5,000.

DUAL TIRES MADE DEMOUNTABLE

Big Company Devises a Rim That Solves Several Difficulties—Split Wedges Play Important Part.

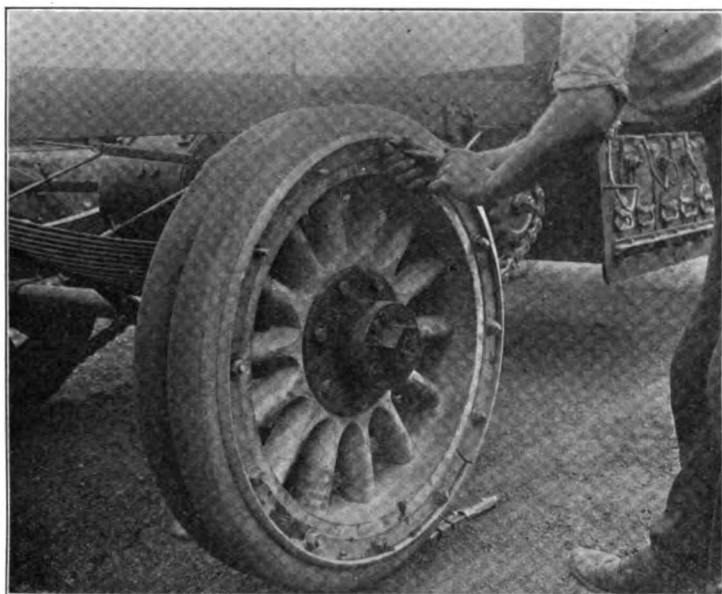
Supplementing its regular line of pleasure and commercial vehicle tires, the United States Tire Co. has placed on the market a new type of demountable solid tire that

therefore, dual solid tires may be replaced in considerably under half the time required by the old method which necessitated the removal of the wheel and the temporary disablement of the vehicle.

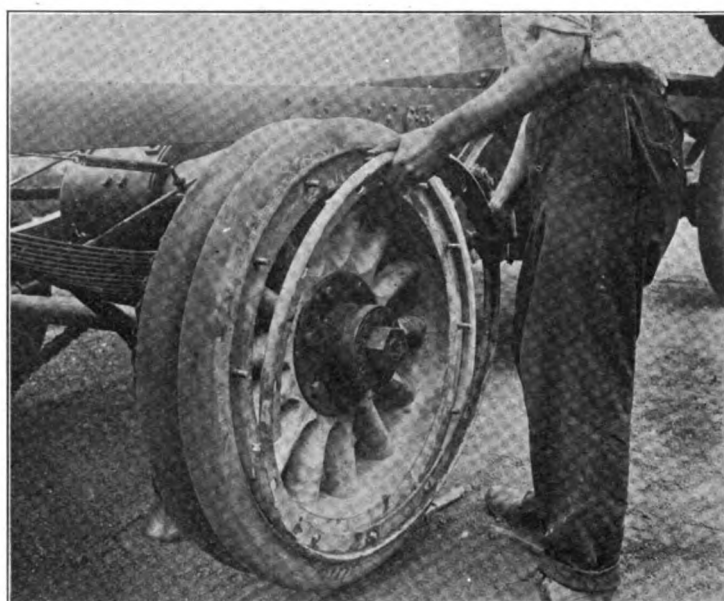
The tire itself is made exactly the same as the Continental solid motor tire which is made in Hanover, Germany, and which has attained a reputation for durability and resiliency. Between the soft rubber tread and the steel band on which the tire

greater than the outside diameter of the felloe band on the wheel, over which it fits. Taking the standard 36-inch tire, for example, the outside diameter of the felloe band is 30 inches, and as the inside diameter of the band on which the new tire is built is 30 $\frac{3}{4}$ inches, there is thus ample clearance and no possibility of the rims rusting or freezing together.

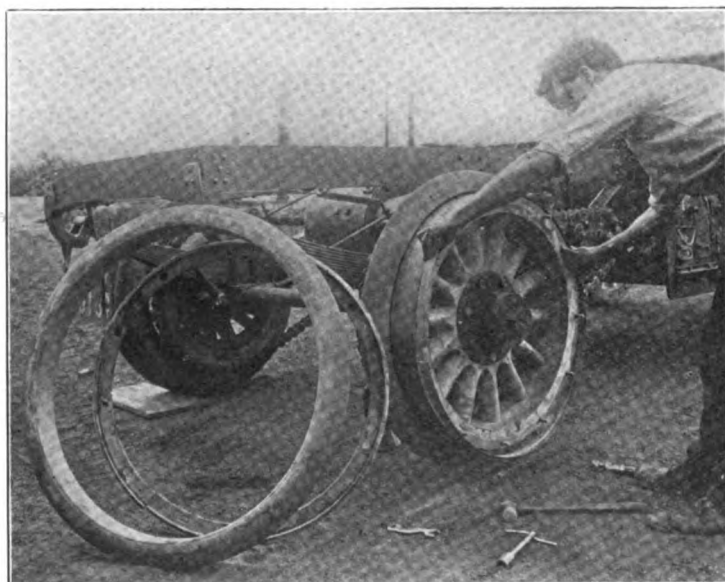
Into this open space between the felloe and the tire band wedges are forced which



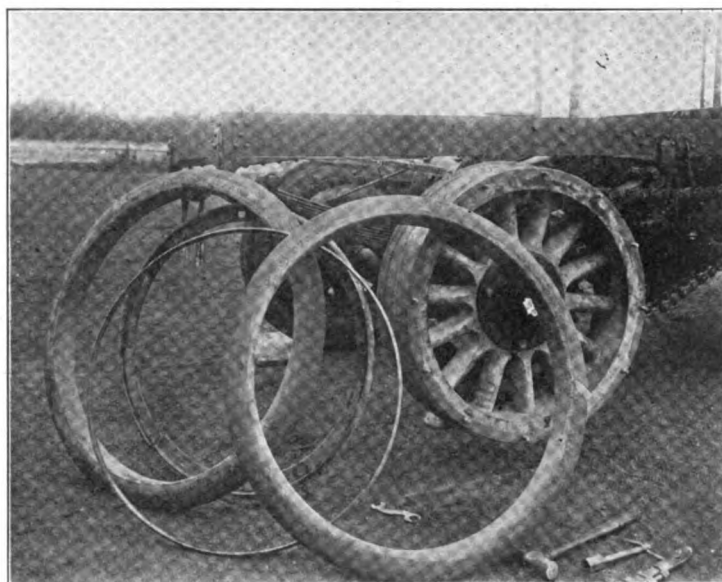
REMOVING BOLTS WITH SOCKET WRENCH



DETACHING THE SPLIT OUTER FLANGE



SHOWING REMOVAL OF SPLIT CENTER FLANGE



ALL THERE IS TO IT—BOTH TIRES DEMOUNTED

cannot well fail to have an important bearing on the truck industry. Though there are several demountable solid tires on the market in which a single solid tire may be taken off a wheel without the necessity for removing the wheel from the vehicle, this is the first one to make its appearance which permits the removal of dual tires quickly and easily while the wheel is in place on the truck. Under the new method,

is mounted there is a layer of hard-vulcanized rubber which is forced into serrations in the steel band. After the hard rubber foundation is in place the soft rubber tread is vulcanized to it, making a solid mass from the tread to the base. The tire is built in accordance with the size adopted as standard by the S. A. E.

The inside diameter of the band on which the tire is built is three-eighths of an inch

are part of the flanges; the wedges are pulled in tight by means of the bolts running through the felloe. The wedges are so designed as to remove all strain from the bolts and are of a 20-degree angle at the top and flat on the bottom. The top of the wedges comes into contact with a corresponding bevel on the under side of the tire band, giving a metal-to-metal seat of about three-quarters of an inch. The

action of the weight of the vehicle on the tire is to press the flange wedges directly onto the wheel band, and as they seat flat there is no tendency towards spreading the flanges.

All the wedges are split, which allows them to be pulled up tight and permits of a greater variation in the circumference of the wheel. The holes through the flanges for the bolts are elliptical and the difference between the outer and inner edge flange lies in the fact that the inner flange has oblong, square-cornered bolt holes and the outer flange has round-cornered, elliptical bolt holes. The holes in the inside flange are square so as to hold the square shank of the bolt, and in this way prevent its turning.

The equipment for a single tire is an outer flange wedge, an inner flange wedge and nine, 12 or 15 bolts and nuts, depending upon the diameter. The equipment for a dual wheel is the same except that it has a center wedge in addition to the flange wedges.

Oil Tank Removal Arouses Portland.

An ordinance pending in the Portland (Ore.) city council, requiring the removal of all oil tanks from the city proper, aroused the most violent opposition when none was expected. The dealers in automobiles, motorboats and motorcycles rose en masse, and announced their intention of fighting the measure with all means at their command. The city fathers were so surprised at the hurricane which struck them that they postponed discussion of the ordinance for the time being. It developed at the dealers' indignation meeting that the Standard Oil Co. and the Union Oil Co., the companies immediately concerned in the tank removal, had served notice that if they were forced to remove their tanks, the price of gasoline would be raised at least five cents per gallon, and that of all other kinds of oil in proportion. Opposed to the wishes of the dealers and automobile owners there was a strong faction of taxpayers who urged that the tanks be removed from the city for the greater safety of their property, claiming that the oil companies could install pipe lines for proper distribution to branch houses. Similar ordinances, it is stated, will be introduced in various other cities along the Pacific coast, where the fear of explosions appears to be greater than in the East.

Old Cotter Pins Not Worth Keeping.

Despite the small economy which may be practiced in straightening bent cotter pins and using them over again the better way is to throw out the old ones and insert new pins. Cotter pins that have been bent and straightened never are as strong as new ones, and as great dependence often is placed on these seemingly minor adjuncts it really is no saving to chance a straightened pin giving way at a critical moment.

THE MOTOR WORLD

HOW THE INDUSTRIES COMPARE

Census Report Discloses Condition of Carriage Trade—Wonderful Gains in Automobile Manufacture.

Whenever a Getrichquick Wallingford seeks to invade the automobile industry he is not thoroughly wide awake if he fails to bait his hook with a comparison of the horse vehicle and motor vehicle trades. With so many millions of horses and carriages and wagons to be replaced by so many millions of automobiles, how can you lose? is the favorite bait which Wallingford dangles temptingly before the hungry "lamb."

Quite apart from the use to which it is put by the Wallingfords, however, the statistics of the horse vehicle industry are full of food for those who have to do with automobiles, and the fact that the automobile trade made its biggest strides since the Federal census of 1904 was taken makes the statistics of the 1909 census of uncommon interest. In a measure they indicate the extent to which the newer industry has affected the older one, which is a favorite subject for speculation. And according to these official figures the output of horse vehicles has decreased from 2,355,065 in 1904 to exactly 2,106,923 in 1909, a loss of over 10 per cent. In the same time the number of automobiles increased from 22,830 to 127,289, a gain of 458 per cent. Especially was the loss evident in the class of horse-drawn pleasure vehicles which decreased by 109,000, or almost exactly the number of automobiles manufactured in 1909 over 1904. The value added by manufacture (product less cost of materials) of the horse-drawn conveyances dropped from \$78,341,000 to \$77,942,000, while the corresponding figures in the automobile trade show a gain from \$16,883,000 to \$117,556,000, or nearly 600 per cent.

In 1909 there were 5,492 establishments manufacturing carriages and 5,588 in 1904, a decrease of 2 per cent. But these numbers are still very large when compared with the number of automobile factories in 1909, which only amounted to 316, but which represented a gain of 88 per cent. over the 168 establishments of 1904. In addition there were 427 establishments in 1909 making bodies and other parts for automobiles.

The capital invested in 1909 in the two industries is almost exactly the same, \$173,837,000 being invested in the manufacture of motor cars, while \$175,474,000 took care of the carriage making. Compared, however, with 1904 the aspect of the two industries changes considerably, for in that year only \$23,084,000 were invested in motor cars and \$152,345,000 in the making of horse-drawn rigs. The five-year interval thus showed a gain of 653 per cent. for the

automobile industry, and one of 15 per cent. for the carriage industry.

The sums paid out in the carriage industry as salaries and wages amounted to \$45,555,000 in 1909 (\$44,944,000 in 1904), while the automobile industry paid to its employees \$58,173,000 in 1909 (\$8,416,000 in 1904), a gain of 591 per cent. One of the interesting items disclosed by the census report is the fact that but 544 automobiles were manufactured in carriage factories during 1909, as compared with 199 in 1904, but exactly what are denominated carriage factories the report fails to make clear.

How Testing Trip Became a "Tour."

To take a bath is a luxury—and to enjoy a luxury while on a "testing" trip with an automobile, is to convert the testing trip into a pleasure trip: ergo, if a dealer makes a testing trip with a new unregistered car and gets so dusty that he has to take a bath to be half-way presentable, he becomes a "tourist" and has to get a license for the car. Such is the law in Germany! The case has set the German public a-laughing and there seems no doubt but that the Reichsgericht, before which the matter will soon be brought on appeal, will reverse the odd judgment as it has done in several similar cases.

The verdict grew out of the case of a certain dealer in Cologne, who had received a new car from the factory, and who tried it out on a short trip to a neighboring town which boasted of a fine public bathing establishment. The roads were exceedingly dusty and Mr. Dealer was so covered with grime that he decided to take a bath then and there. A few days later he was informed that he had to pay a regular tourist's license fee for the particular car in which he took the trip, and even the appellate division of the State court found against him, ruling that a bath was not a legitimate part of the try-out. He, however, again appealed, and the case probably will come before the Reichsgericht for final decision.

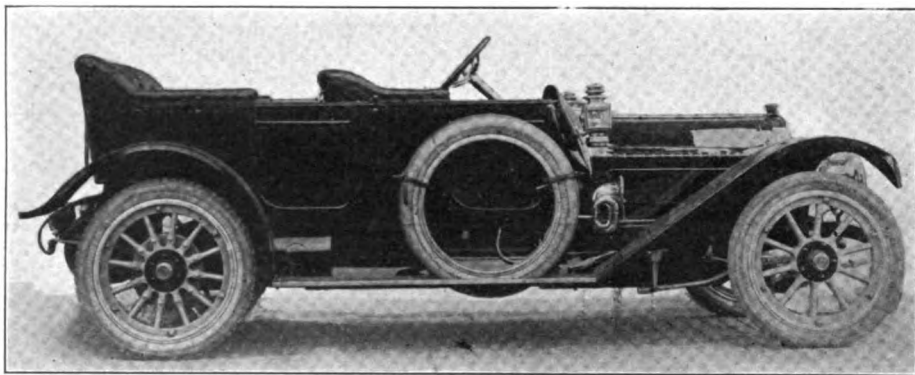
Life Insurance Money for Motor Cars.

In a recent speech John I. Willys, president of the Willys-Overland Co., undertook to answer the question as to what becomes of all the cars manufactured. The Wall Street Journal, on the other hand, essays to show where the money comes from to pay for all these thousands of automobiles. According to the Oracle of the Financial District there is no doubt but that a large percentage of the money to pay for motor cars comes from the life insurance companies, which have disbursed to policyholders some \$360,000,000 during 1909, and as much or more in 1910. "To the beneficiary of such a policy," says the Journal, "and also to the payee of one of those 20-year endowment policies, the sum received is like 'round money,' and, according to the old adage, 'Easy come, easy go,' an automobile is the usual purchase made."

POPULAR-PRICING THE "SIXES"

Palmer & Singer Make Another Move in That Direction—Bring Out a \$2,000 Model Bristling With Value.

When, some three weeks ago, the Palmer & Singer Mfg. Co., of Long Island City, N. Y., announced reductions in the price of its standard four- and six-cylinder models, bringing the prices down from \$3,900 and \$4,200 for the seven-passenger cars to \$3,000 and \$3,200, respectively, it looked like remarkable value for the money. But when late last week the company launched a 40-horsepower "little six" cylinder touring car at \$2,000 it added, if anything, even more remarkable value. The car, which is styled the "Brighton six," is an addition to the line and is undoubtedly one of the "best buys" of the season.



NEW PALMER & SINGER \$2,000 "BRIGHTON SIX"

It is a real high-class automobile, too—the reputation of the manufacturers insures that—and, what is more to the point, nothing about the car has been skimmed. Everywhere the liberality of the manufacturers is evident, and one of the particular points indicative of this is that in common with other cars which list at more than double the price the comforts incidental to the use of 10-inch upholstery are one of the noteworthy features.

The whole car throughout is distinctly a new model, though many of the features that helped make the older P. & S. cars popular are incorporated in the new one. Thus the well-known T-head motor is used, though its six cylinders are cast in two blocks instead of in three as in the other six-cylinder model; the cylinder measurements are four inches bore and five inches stroke. Lubrication is effected by means of splash and a self-contained oil tank in the crankcase from which a constant level in the crankcase compartments is maintained by pump.

In the matter of carburation particular attention has been given the necessity for rapid acceleration, and to this end the intake manifold has been made more than ordinarily short so that the carburetter is

as close to the intake ports as possible. Following the general design of the other P. & S. models, fuel is supplied under pressure from a tank hung behind the rear axle. Pressure is obtained in the orthodox manner by means of an exhaust check valve with hand pump and pressure gauge located on the dash.

Two separate and individual ignition systems are provided, a Bosch high tension magneto with variable spark control serving to operate one set of plugs and a battery system with Splitdorf timer and single unit dash coil operating another set. The timer is located at the top of a vertical shaft at the rear of the engine, and is easily accessible for inspection or the adjustment of wires. For the cooling system a Mercedes type honeycomb radiator and centrifugal pump are used in conjunction with a particularly light and easy-running fan.

The frame of the car is of five-inch channel section pressed steel and is mounted in

front on semi-elliptic springs and in the rear on three-quarter elliptic members. Conforming to the tendency toward rear axle located change gear mechanism, this part of the transmission is enclosed in an extension of the differential housing. Three speeds forward and reverse are provided and are obtained selectively, gear shift and emergency brake control levers being at the right of the driver. Power is transmitted through an enclosed propeller shaft by means of a multiple disk clutch; the rear axle is semi-floating. Both sets of brakes, which are of unusually large area, are located on the rear wheels, and both are of the internal expanding variety.

But one type of body is supplied on the chassis, which is of 127 inches wheelbase. The body itself is of the modified torpedo type, in which a fairly short skuttle dash and straight line sides are the principal features. The leg room which is provided is exceptional, and this is particularly noticeable in the driver's compartment, where there is plenty of room to "stretch." In the rear seat provision for three passengers is made, though owing to its wideness it is probable that four would have little difficulty in squeezing in if necessary.

Firestone quick-detachable and demount-

able rims are items of standard equipment, wheel sizes being the same for both front and rear, viz., 34 x 4 inches. Completing the regular equipment, a full set of lamps, Prest-O-Lite tank, tools, pump and jack are furnished.

Regarding the other three cars in the line very little need be said, as they remain without change except in the case of the six-cylinder 60-horsepower model. In this car a dry multiple disk clutch has been substituted for the one which last year operated in an oil bath. Both the four-cylinder 40-horsepower model and the "6-40" will be continued practically without change except as regards minor details. The four-cylinder 30-horsepower model, however, has been dropped, which, with the addition of the new "Brighton six," leaves the line the same in the matter of numerical strength of models as heretofore. Both of the larger models are regularly supplied with five- and seven-passenger touring, limousine, landaulet and runabout bodies. The older "6-40" is supplied only in five-passenger and runabout form.

Edison "Boosting" Battery Not Ready.

Though it is fairly well known that the Edison Storage Battery Co., Orange, N. J., is actively engaged in perfecting a new type of storage battery, "it has not yet been worked out to a commercial basis," according to officers of the company, and orders for it cannot be entertained for the present, at least. The new battery is known as the thin plate type of Edison storage battery and is further styled a "boosting battery" by reason of a particular virtue which allows of short charges at considerably greater than normal strength. A ten minute "boost," or charge at a high rate, it is said, will permit the battery to accumulate sufficient "juice" to operate a vehicle for one hour.

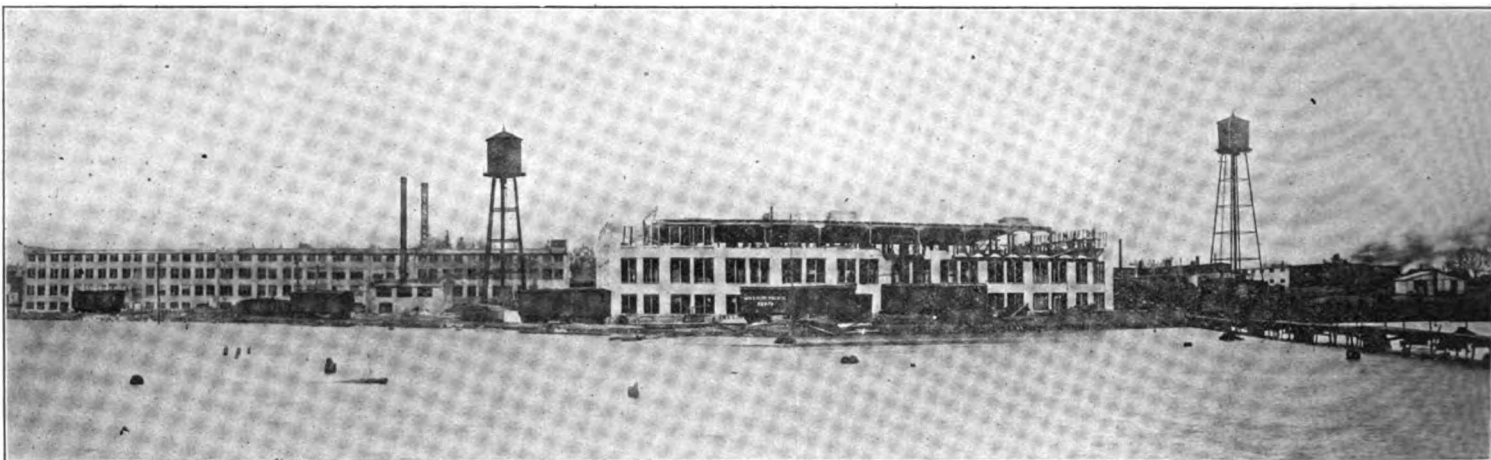
"Six" Added to the Garford Line.

After some three years' experimentation, the Garford Co., of Elyria, Ohio, has ready for the market a six cylinder car which, like the other Garford productions, will be marketed through the Willys-Overland Sales Co. The Garford "six" has a bore of 4½ inches and a stroke of 5¼ inches, and develops 50 horsepower. It employs four speed selective transmission, Bosch dual ignition, full floating rear axle, shaft drive and ball bearings. The wheelbase is 135 inches and the tires 36 x 4½.

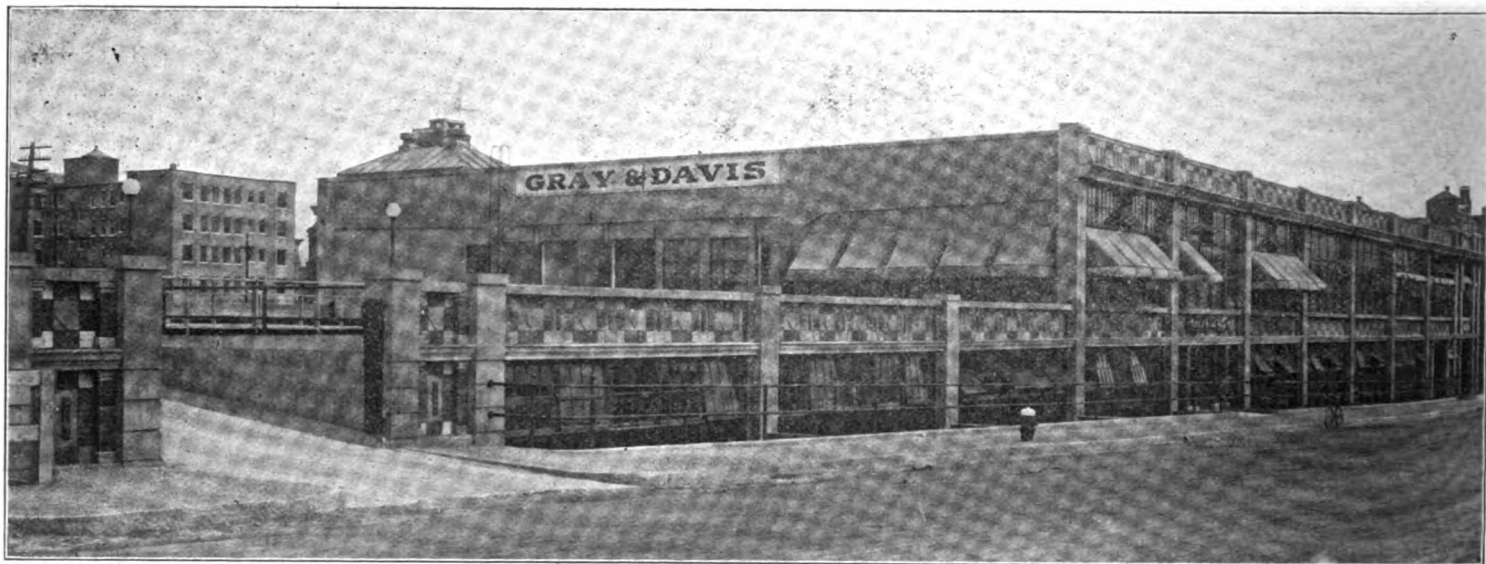
Big Trucking Company Formed in Toledo.

To engage in the general haulage business on the contract system, the Mallory Transportation & Storage Co., of Toledo, O., has been incorporated with \$150,000 capital stock, a number of the most prominent business men in Toledo being interested in the enterprise, among them John N. Willys, of the Willys-Overland Co., and Isaac Kinsey, of the Kinsey Mfg. Co. The company will maintain a fleet of 28 trucks.

PHOTOGRAPHIC EVIDENCE THAT TELLS ITS OWN STORY OF CONTINUOUS PROSPERITY



GENERAL VIEW OF KISSEL KAR PLANT AT HARTFORD, WIS., SHOWING NEW ADDITIONS



GRAY & DAVIS'S NEW PLANT IN BOSTON FOR PRODUCTION OF LIGHTING DYNAMOS ONLY



HUDSON MOTOR CAR CO.'S FACTORY IN DETROIT WITH RECENT ADDITIONS COMPLETED

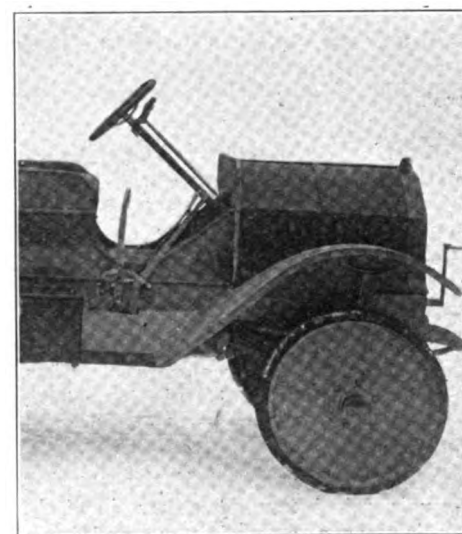
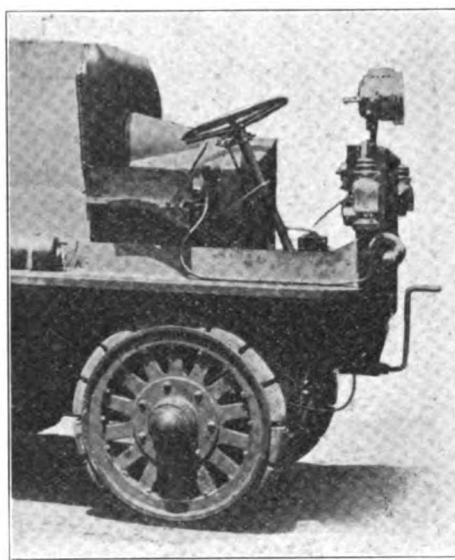
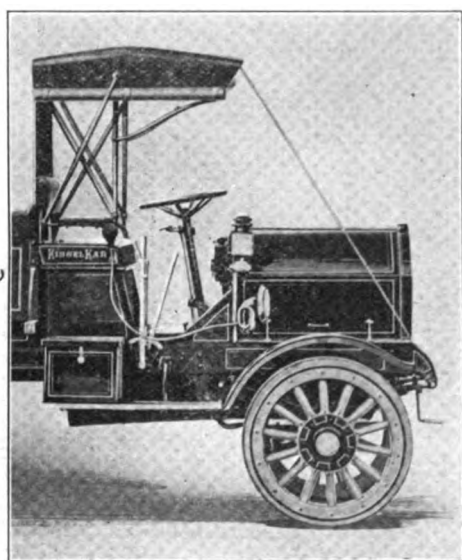
Truck Problems; the Angle of the Steering Post

To those who have had opportunity to ride beside the operator of a motor truck in which the steering gear is of the reversible order the action of the steering wheel in the hands of the driver when the vehicle is driven over other than the smoothest of roads well may furnish food for thought. If the road is rough enough it is likely that the steering wheel will be wrenched first one way and then the other through the driver's hands, and unless he is watchful there is danger that before any great amount of time has elapsed his hands will have become painfully bruised.

that no other part of a freight-carrying vehicle is more deserving of careful re-designing than the steering mechanism.

This was most forcibly brought to mind by a recent fatal accident to one of the London Omnibus Co.'s motor buses in Regent street, London. The bus was proceeding at a moderate rate when for some unaccountable reason it swerved and one wheel came in collision with a tram-car. The result of the coroner's inquest was that "the steering wheel was knocked out of the driver's hand, he thereby losing control." Immediately following the inquiry

In the first place, the ordinary type of pleasure car is designed for very much higher speeds than ever are obtained with motor buses, and as the average motor bus is almost identical with other commercial vehicles of the heavy, slow-moving variety, considerations in the design of each are quite similar. In order to steer any moving vehicle it is necessary that the driver be able to move the steering wheels the required distance in the time available. If the vehicle is moving very rapidly the time available is appreciably shorter, and consequently for pleasure cars it is necessary



FIGS. 1, 2 AND 3—STEERING COLUMN ANGLES AS EXEMPLIFIED BY KISSEL, B. O. E. AND LAMBERT

While the comfort of the truck driver may be deemed a minor consideration, eventually it must be given just as much thought as is given the mechanism of his vehicle, for it is acknowledged that the operation of commercial vehicles in general on a paying basis depends largely on the driver. There is another factor which also is needful of attention. It is the factor of safety, and there is no point in the design of a motor truck upon which the safety of the vehicle, its load of human and inanimate freight and other vehicles and pedestrians depends to a greater extent than the steering mechanism.

It is quite true that practically the same desideratum—of a steering mechanism as nearly perfect as possible—is just as necessary in a pleasure vehicle, but in the designing of a steering gear for a pleasure car and a commercial vehicle there is a vast amount of difference. Pleasure car practice profitably may be copied to a large extent in the construction of other portions of commercial vehicles, but it is probable

into the cause of the accident the various public prints were deluged with letters suggesting methods whereby such occurrences might be rendered impossible in the future. Some of the letters were from eminent automobile engineers and others were from persons not even remotely connected with the automobile industry, and the consensus of opinion seemed to be that if the steering gear of the bus in question had more closely followed the general lines of that used on pleasure cars there would have been less likelihood of the accident, at least.

The accident was blamed on all manner of things—as accidents usually are. It was suggested that if the angle of the steering column had been greater, so as to incline the steering wheel, too, at a greater angle toward the driver, better control would have been possible. But the fallacy of this contention becomes apparent after a little thought; a short resume of the conditions to be met in the designing of a pleasure car steering gear may assist in making it clear.

that the gear ratio between the steering wheel and the front road wheels be considerably higher than is necessary for commercial vehicles, the speed of which is comparatively slow.

Another consideration is that the pleasure vehicle is light as compared with a commercial vehicle and less effort is required to move the steering road wheels. If the same comparatively high gear ratio between the steering wheel and the road wheels as is used on pleasure cars were used on commercial vehicles it is likely that the driver would find it well-nigh impossible to steer such a vehicle at all, much less alter its direction quickly enough to keep the car out of danger.

In the design of a pleasure car wind resistance is a big factor. In order to reduce the surface exposed to the wind as much as possible it is necessary to keep the seats low, which briefly explains the reason for excessively raked steering columns. Incidentally, the raked steering column permits the larger steering wheels which the higher

gear ratio makes necessary to be handled more easily.

In the designing of the steering gear for a commercial vehicle, on the other hand, the conditions to be met are almost entirely different. In the first place, the vehicle is heavy, which makes necessary the use of a low gear ratio between the steering wheel and the front road wheels. Inasmuch as the speed of the vehicle is low, a higher gear ratio is not necessary, and, as has been pointed out, very likely could not be used because of the physical exertion which would be needed to turn the wheels.

As the exact angle of the steering column presents no particular difficulty in design and entails no additional manufacturing cost, almost any angle can be used from these two points of view. Also, as the wind resistance offered by commercial vehicles is of little moment, owing to their slow speed, this factor, as well, may be disregarded and the designing of the wheel and the angle at which it shall set resolves itself principally into a problem concerning the best position for easy and quick control.

In the ordinary type of pleasure car with excessively raked steering column reliance is placed largely in the strength of the wrists of the driver, and this is sufficient because less effort is required to steer a pleasure car. But with a heavy commercial vehicle, unless the gear ratio between steering wheel and road wheels is extremely low—almost too low to be practicable—the average driver has not strength in his wrists sufficient to manipulate the steering wheel. For smooth roads he may have, but on rough roads greater strength is required, and it cannot be applied if the steering column is raked beyond a certain limit. For this reason a straight up-and-down column, or one with a slight rake, is necessary, for the driver then can exert a straight push with one arm and a pull with the other, bringing into play the muscles of his body as well as those in his arms and wrists.

In actual practice opinions differ as to just what angle may be used to obtain the best results, though most manufacturers prefer a vertical column or one that has but a slight rake. Some idea of the various angles that are used by representative builders may be gained from Figs. 1, 2 and 3, in which the Kissel, B. O. E. and Lambert trucks are shown, respectively. In the first the angle is very slight—just sufficient to permit the column to be placed far enough forward so as not to interfere with the driver's leg space and still have the steering wheel within easy reach of the driver.

The B. O. E. wheel, illustrated in Fig. 2, is set at a still greater angle, though it is well within the limit prescribed for ease of action; at the same time the base of the column is so far forward that the pedals may be operated without interference. Lambert construction, illustrated in Fig. 3, embraces the use of a steering column

angle that more nearly approaches that used in pleasure cars. Inasmuch as the truck is lighter in construction than either of the other two and is designed for lighter loads, a greater angle is permissible without danger of reducing the efficiency of the apparatus.

But for the heavier class of vehicles, designed for the conveyance of upward of five tons of merchandise, the column that is vertical or has but a slight rake is the best. The ease of operation which the vertical column permits is shown graphically in

that any old wheel be used. Primarily the wheel must have the requisite strength to withstand the constant shock incidental to the passage of the car over rough roads. Little need be said in this respect, however, as the construction of a strong wheel presents little difficulty. The diameter of the wheel is the next consideration, and on this point few manufacturers agree. Naturally, the construction of the rest of the mechanism controls the size of the wheel to some degree, for a high gear ratio necessitates a larger wheel than does a low one.

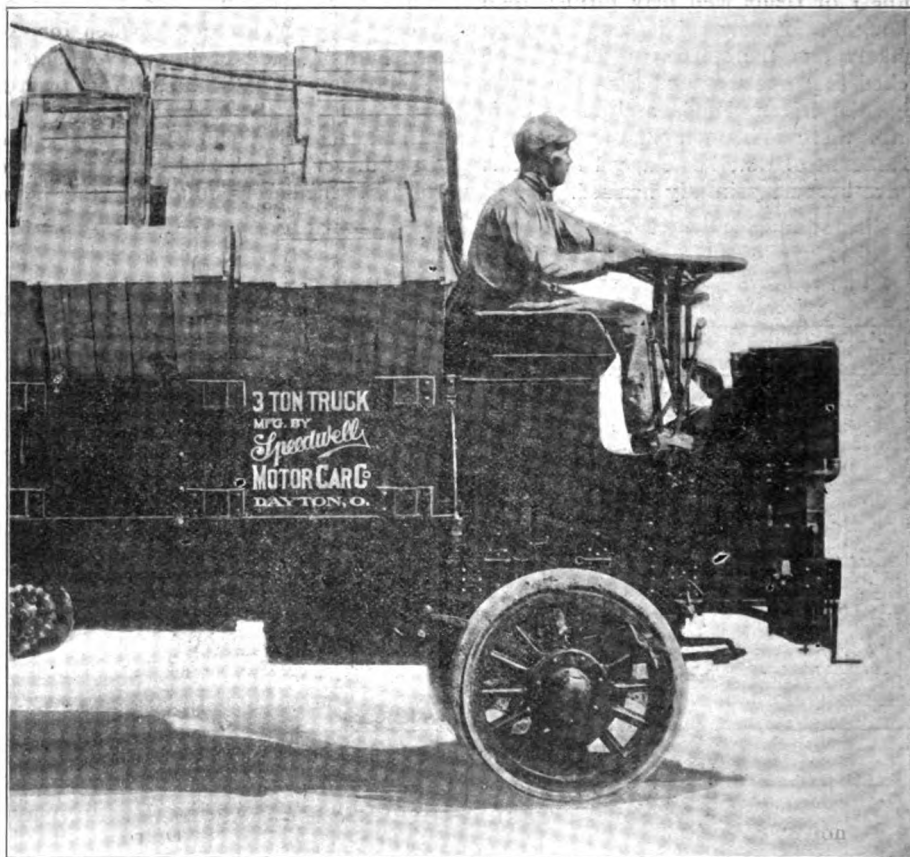


FIG. 4—EASE OF CONTROL AFFORDED BY VERTICAL COLUMN

Fig. 4, in which a Speedwell three-ton truck is illustrated. Also it may be seen that on occasion the driver can exert a great deal more strength with this arrangement than he can when the column is raked in accordance with the general practice in pleasure car design.

Of course, in the design of light delivery wagons very nearly the same conditions have to be met as when pleasure cars are designed, and for this reason little difference in the construction or position of the component parts of the steering gear need be made except as regards the factor of necessary strength. A great many of the delivery cars in the lighter class, of which the Johnson, illustrated in Fig. 5, is one, approximate very closely pleasure car practice, and this arrangement gives universal satisfaction.

In the design of the steering wheel itself much more thought must be given than generally is supposed; it is not sufficient

and vice versa. But there are cases where this rule is overlooked, and cars with high gear ratios are equipped with steering wheels that are so small as to require an inordinately great amount of strength to turn the road wheels. But these are merely the exceptions that prove the rule, and in the majority of cases the diameter of the wheel has been determined only after study and experiment.

The distance between the average man's arms stretched parallel in front of his body varies approximately from 16 to 20 inches. To provide a perfectly natural position for the driver's arms, therefore, it is advisable to keep the wheel within these limits, and it has been demonstrated that these figures are very nearly correct. Averaging the two, 18 inches is the best diameter, and this is the size that is most used.

Regarding the position of the control levers on the average commercial vehicle, and particularly the emergency brake lever,

there is much to be desired. It has on more than one occasion been pointed out that the emergency brake lever is the most important thing on a car—in an emergency. And if this is so with pleasure cars in which a real emergency seldom arises, it is doubly so with commercial vehicles, for the reason that in the majority of cases their most useful field of endeavor is in traffic-congested areas where emergency stops continually are necessary.

Though the majority of manufacturers appreciate this fact and place their levers within easy reach accordingly, there is a sufficient number who overlook it to cause comment. It is not uncommon to see an emergency brake lever so placed that almost superhuman efforts on the part of the

complaint. There is no reason, legitimate or otherwise, for placing the levers so that they scarcely can be reached, nor does it entail added manufacturing cost to place them properly. In view of these facts it is reasonable to expect that perfection will be more nearly approached in the future than it has been in the past.

Disco Starter Makes Noted Converts.

What was in view when the Ignition Starter Co. recently removed from Grand Rapids to Detroit, Mich., now has been made plain. It carried with it immediate and real expansion, the manufacture of 300 Disco starters per day and the adoption of a truly aggressive policy at the auspicious moment when self-starting devices, no

on the engine starts itself, and so efficient has the method proven that in 98 cases out of every 100, engines have been started easily and instantly, without the slightest further trouble.

The component parts of the system embrace a number of engine valves, equal to the number of cylinders, which are inserted in place of the ordinary pet-cocks, the main distributor valve to which the starting handle is connected and which is mounted behind the dashboard, and a two-way valve to replace the ordinary one-way acetylene valve on the gas tank. From the distributor valve four tiny pipes are led to the four engine valves in an engine having that number of cylinders; a fifth pipe is led from the distributor valve to the ordinary acetylene gas tank. The action of the distributor valve is to control the quantity of acetylene that is admitted to the cylinders through the separate engine valves, and as more than a minute quantity cannot be admitted with one revolution of the handle there is no danger that an explosion of too heavy a nature can take place. As a matter of fact the amount of gas required is so small that sufficient is contained in the ordinary gas tank to insure no less than 3,000 positive starts.

Avery Brings Out "Enriched Gasolene."

Claiming to have discovered a means by which commercial gasoline is enriched and its explosive power increased, P. C. Avery, of the Avery Portable Lighting Co., Milwaukee, Wis., has brought out a mixture of gasoline with acetylene gas, which he calls Acetrol. Gasoline is capable of absorbing several times its own volume of acetylene gas, and Avery states that his mixture of gasoline vapor and acetylene gas will exert a pressure of 207 pounds per square inch when exploded in the cylinder, thus affording more power. He also claims that combustion of this mixture is so much faster than that of the ordinary gasoline-air mixture, that an advanced spark is unnecessary. "The difference between my enriched gasoline and plain gasoline is about the same as the difference between the old fashioned black gunpowder and the latest development in nitro smokeless powder," is the way Avery sums up the virtues of his discovery.

Tobacco Pipe Saves Gasolene Line.

A resourceful motorist who always has made it a practice to care for his own car recently gave an example of ingenuity that might well be copied by others who find themselves in the same predicament. His gasoline pipe broke on the road, and, being without the "ordinary kitchen soap and piece of rag," or even a piece of adhesive tire tape, he simply removed the stem from his favorite tobacco pipe, and, pointing it at each end, used it as a temporary union to join the broken fuel pipe. Afterward he bound the spot with a piece of twine and it held until he reached home.

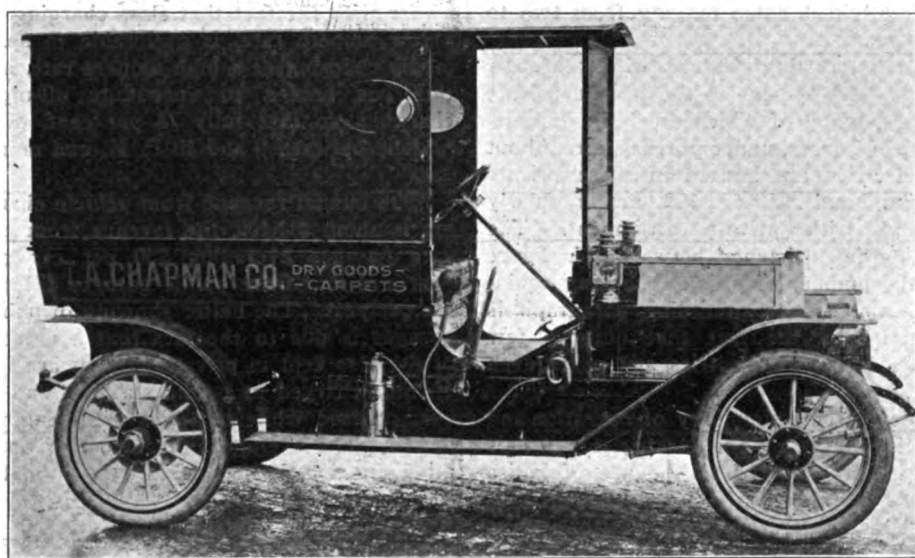


FIG. 5—RAKED STEERING COLUMN AS USED ON JOHNSON

driver are necessary for him to reach it. In case of an emergency even the foot brake cannot properly be applied when the emergency brake lever is so situated because in the position in which it can be reached the driver cannot brace himself. He very likely is balanced on the edge of his seat with his chest or chin jammed against the steering wheel, in which position it is impossible for him to do anything other than to look happy, or scared, as the case may be.

Gear shift levers very nearly always are placed correctly, because they must be used continually and must be reached with the minimum expenditure of time and effort. On some cars, however, they occupy positions calculated to make the most ardent churchgoer "cuss," and it really is no wonder that mechanisms are strained and motors overworked because of the disinclination of drivers to stretch arms nearly out of sockets hundreds of times a day when the car "will do it on high if she must."

Manufacturers have been educated up to placing the control levers properly on pleasure cars, and until they devote the same amount of attention to their commercial vehicles there always will be cause for

longer to be denied, began to sweep the industry like an epidemic. The Disco people had not been long in Detroit before they made a noted convert—the Metzger Motor Car Co., which had practically decided to employ on its Everitt cars an engine starter operated by exhaust gas. Then the merit of the Disco was made apparent and it has been adopted as standard equipment for the Everitt line. On the Hudson car and on the Westcott it also will be part of the equipment, and several other "catches" are in prospect. But the Disco is applicable to old cars or trucks as well as to new ones, and it is stated can be installed by any man of average ability in about two hours without making changes of any sort in the engine. The device contains but 12 parts—none of them moving parts—and weighs but four pounds.

In operation it is delightfully simple, a single turn of a small handle conveniently located on the dash being all that is necessary beyond a switching on of the ignition. This single turn of the handle, be it added, serves to insure the introduction into each cylinder of an almost minute quantity of acetylene gas from the ordinary compressed gas tank. Then when the spark is turned

ELECTRIC CARS FOR SMALL TOWNS

Rockford, Ill., Cited as a Good Example of Possibilities Afforded—Service That Brought Profitable Results.

Illustrating how with proper assistance from the right sources the cost of electric vehicle transportation may be reduced to astonishingly low figures, F. H. Golding, of Rockford, Ill., described the situation in that city in a paper read before the Electric Vehicle Association at its annual meeting recently held in New York City. Despite the fact that the annual cost of charging has been reduced to between \$60 and \$71 per vehicle, the yearly revenue from sales of charging current for the 185 cars at present in service amounts to about \$11,100. Considering that this is "off-peak" business, that sum constitutes a very desirable "plum" for the central stations, which thus obtain a revenue at times when their plants and employees would be practically idle.

"The introduction of electric vehicles in smaller cities has not progressed to a marked degree, and the lack of progress can undoubtedly be attributed to three causes," in Golding's opinion, "to wit:

"1. The central station does not appreciate the value of vehicle-charging as a source of revenue.

"2. The central station operator feels that because of some peculiar local conditions, such as grades, paving, or character of community, the introduction of electrics into his city cannot be successfully accomplished.

"3. A desultory, hit-or-miss campaign has resulted in a few vehicles, but failure to properly instruct vehicle purchasers, and to oversee operation, has caused the vehicle to fail to give satisfaction to the user.

"Probably the best argument with which to meet the foregoing reasons for non-development as a statement of development of the electric-vehicle business in Rockford, Ill., which presents a very good example of what can be accomplished in a medium-sized city. The census of 1910 gave Rockford a population of 45,501, and as a result of a consistent campaign and careful supervision of vehicles in use, it has now more than 185 electric pleasure vehicles in use, with some 80 private charging equipments for electric machines.

"The city is located on the rolling prairie of Northern Illinois, and is consequently only fairly level, and is fairly well paved, but the owners of electrics do not hesitate to drive out over hilly country roads, and a trip of 35 or 40 miles over average country roads is not infrequently taken. One might say that the hills in Rockford are not as great as those in some other city, but when one sees electric vehicles successfully climbing the hilly streets of

Scranton, Pa., and considers that an electric made an excellent showing in the famous Algonquin hill climb some two or three years ago, it must be conceded that the city whose grades operate against the electric vehicle must be a very hilly city indeed.

"The success of electrically driven vehicles in Rockford is in a large measure due to the fact that the electric company, from the beginning, employed a capable battery and motor man for the purpose of instructing owners in the care and operation of batteries and vehicles. The importance of 'gasing' the batteries at frequent intervals, keeping the water level up and checking charging by gravity tests rather than by volt-ampere input was impressed upon owners, and, as a result, unusual battery life it attained, same ranging from two to three years.

"An interesting feature of Rockford's vehicle development is the unique private garages, many of which are built in basements of houses, under porches, etc. About 140 electrics are housed in these private garages, and 95 or 100 are regularly charged with private equipment. The seeming inconsistency between this figure and the number of private charging equipments noted in a preceding paragraph is explained by the fact that quite a few owners have two electrics and some even three.

"The extreme simplicity of operation and the cleanliness of the electric car makes it especially adapted to the use of ladies as well as to that of business and professional men where the frequent stops make the cranking of a gasoline car a great deal of trouble.

"There has been as yet no commercial truck business developed, and the chief obstacle appears to be the first cost of the electric truck as compared with gasoline. This is particularly true of the lighter vehicles for groceries, etc., as a gasoline machine of this character can be purchased for less than \$1,000. Up to this time the electrics have not competed with gasoline cars to any great extent, as each type of car has had its own particular field, and, as a matter of fact, many Rockford people have both types of car. The development of higher-capacity batteries, making possible a run of upwards of 100 miles on a single charge, is opening up another phase of the situation, and the writer ventures to express the belief that within a few years the electric will be a formidable competitor of the gas car.

"The central station at Rockford makes an 'off-peak' charging rate of six cents net per kilowatt, with a minimum charge of one dollar per month, the 'off-peak' period covering from 4 P. M. to 9 P. M. from November to February, inclusive. For public garages, of which one handles electrics exclusively and two handle both electric and gasoline cars, an 'off-peak' rate of four cents net is made, the contract con-

taining the same 'off-peak' stipulation that contracts with private individuals contain, and a further proviso fixing the price at which the garage must resell charging current to car owners at six cents. It will be apparent that the latter clause is intended to insure the vehicle owner that the cost of operating his car will be no greater if he chooses to have it cared for in a public garage than if he installs his own charging equipment or charges at the company's depot.

"The enforcement of an 'off-peak' charging rule requires little attention, as the electric automobile is naturally used in the afternoon and the evening, so that the very nature of the vehicle makes it essentially an 'off-peak' proposition. In Rockford the electric company impresses the vehicle owner with the fact that slow charging, at a low ampere rate, is preferable to spasmodic charging at a high ampere rate, and this has tended to encourage all-night charging, so that fully 75 per cent. of it is done between 9 and 10 P. M. and morning.

"The annual revenue from vehicle charging is about \$11,100, the revenue from private garages averaging \$60 per car per year and that from public garages \$71 per car per year. The better showing of public garages is due to the fact that a number of the cars kept in private garages are frequently charged at public stations, and to current used while batteries are being repaired. The average annual cost of operating an electric in Rockford is estimated as follows:

Current for charging.....	\$60
Battery maintenance	30
Tire maintenance	40
Vehicle maintenance	50

Total\$180

"The vehicle maintenance cost covers repainting and overhauling the machine each year."

Lighter Oil that Prevents Stiffness.

The periodic tendency toward stiffness which some motors exhibit with the advent of cold weather generally is due to the fact that the oil used is too heavy. It would be remembered that when any grade of lubricating oil is chilled its viscosity is raised, or in other words it becomes "stickier." Consequently it offers greater resistance to the moving parts and the stiffness results. Though the oil reservoir in most motors is so situated that the oil is maintained at an even temperature at all times, others in which external oiling devices are used should be supplied with a lighter grade of oil during cold weather. When no mention is made by the manufacturer to the effect that a change is necessary it is best to use one grade the year around, as no harm can result provided a sufficient supply of lubricant is maintained in the reservoir. At any rate, it is well to consult with the manufacturer before making a change.

HERE'S A LAMP THAT LIGHTS ITSELF

Employs Phosphide of Hydrogen in Causing Spontaneous Combustion—How the System Works.

Employing one of the more or less well known laws of chemistry which ensures spontaneous combustion when certain gases are mixed, a British inventor with a penchant for such things, has perfected and placed on the market a radically new type of acetylene lamp lighter which, it is claimed, is infallible as well as entirely automatic in action. It is styled the Low Automatic Lamplighter, and though in its present form it is applicable only when acetylene generators are used, there are abundant possibilities for its use in connection with the more numerous and popular gas tanks.

Aside from the necessity for carrying a supply of a chemical other than the calcium carbide which is used in making acetylene, but which it is claimed can be purchased almost anywhere, "twopennyworth sufficing for about 200 lights," the device really has merit in that none of the mechanical aids, such as wires, spark coils or other contrivances, which generally are a part of such systems, are used. Instead, the whole apparatus, which is quite simple, is enclosed in the acetylene generator itself, or rather in a miniature generator of very much the same type, which is attached to the top of the other.

The upper portion of this secondary generator contains water and the lower portion, or container, serves as a reservoir for the calcium phosphide, from which the gas is made on which the action of the system depends. Inside a central tube in the generator there is a plunger, held in place by means of a spring, which is hollowed out at its lower extremity so as to contain a small quantity of water, which is admitted to the hollow space through two small holes in the tube. When the plunger is depressed this small quantity of water is carried down and issues through another hole to reach the calcium phosphide, after first having passed over a distributing ring.

The gas which is liberated is phosphide of hydrogen, and in its pure state would ignite spontaneously immediately it came in contact with the ordinary atmosphere. It is in controlling this tendency to spontaneous combustion that the ingenious part of the apparatus is revealed. Mixed with the calcium phosphide there is another chemical or "neutralizing agent," the name of which is a dire secret. Its action is such that the phosphide of hydrogen is rendered impossible of spontaneous combustion unless mixed with acetylene gas as well as air.

To put the apparatus in action it is mere-

ly necessary to open the valve in the acetylene line leading to the lamps, and after sufficient time has elapsed for the acetylene to generate and the air to be expelled from the line, depress the plunger in the auxiliary generator once. This causes phosphide of hydrogen "and another gas" to be generated and these two are introduced directly into the acetylene line by means of a T joint. When the mixture reaches the air spontaneous combustion takes place and the lamps light.

When the lamps are first lighted, it is explained, they burn with a slightly yellow tinge until the compound gases given off by the lighter are exhausted. Providing a supplementary use for the compound (calcium phosphide and the "neutralizing agent") it is stated that a small quantity added to the calcium carbide in the ordinary type of acetylene generator causes the lights to burn with a yellowish tinge, which color is much esteemed by Britishers for driving in the foggy atmosphere for which parts of England are famed.

Places "Warning Pictures" in Schools.

Realizing that the best way to warn children of the dangers they run when dodging in and out of traffic, and especially when hanging to the rear end of wagons, is to give ocular demonstrations and instructions, the Education Committee of the city of Hull, England, has caused to be hung in 186 departments of the municipal schools two pictures illustrating in a striking and vivid way these dangers. One of the canvases shows three children hanging onto a wagon in a crowded street—it is labeled "A Dangerous Game." The second picture shows one of the two boys run over by an automobile while the other boy and girl shield their eyes in terror—it is called "A Sad Result."

Four Year Old Boy "Took a Chance."

If one cares to believe a story which comes from Connersville, Ind., it is safe to lie in the road and to allow a motor car to run over you—provided you take care to lie lengthwise and keep still. A Connersville lad of the ripe age of four years is said to have tried the experiment and to have come through unscathed. As the tale comes from the Hoosier town, William Morler had heard that one could be run over without getting hurt, and he wanted to find out whether it could be done. So one day last week he lay down in front of R. M. King's automobile, and after the car had passed over him jumped up in high glee, exclaiming, "I done it, didn't I?"

Avery Treasurer of Milwaukee Club.

Percy C. Avery will look after the financial end of the Automobile Club of Milwaukee, Wis., until the next annual election of officers. He has been made treasurer to succeed Charles S. Drake, who resigned to devote his time to good roads work.

HOW SANDS REACHED HAZELTON

The Story of His Herculean Task of Blazing a Trail Through Virgin Country—Luck Assists Pluck.

For heart-breaking toil and privation, and at the same time astonishing good fortune, the trail-blazing run of P. E. Sands in the Flanders Pacific Highway pathfinder recently completed from Seattle to Hazelton, B. C., is unique in the annals of motordom.

Leading for nearly three weeks the primitive life of uncivilized men, with no roof over their heads and the mud for their beds at night with a simple diet of bacon, beans and bannock frying-pan bread (concocted "sour-dough" fashion), with an occasional variety of grouse shot by members of the party, they struggled through rainstorms, deep mud, across swift-flowing mountain streams and up and down and around the steep-sloping sides of precipitous hills and through forests in which it was necessary for axemen actually to hack the way.

And withal, good fortune seemed always at their elbows to give encouragement to the three men who constituted the party just as hope was at its lowest ebb. When they struck into the wilds of northern central British Columbia, where no other motor car or even a lumber wagon ever had gone, they discovered that, should any part of the car no matter how small fail them, it would require two months' time to get a new part. The imminence of an occurrence of this kind, which would have meant catastrophe to the enterprise, perhaps wore down their nerve more than the grinding labor they were compelled to endure. Such an accident would have meant that they must lay in whatever part of the wilds it happened for two months or else abandon the car.

The mental attitude of three plucky fellows may well be imagined when, at one point between Fraser Lake and Burns Lake, the dry cells of the battery gave out. They had no extra cells in the kit of equipments. Then, as in a hundred other instances, luck came to the aid of pluck. They found, a few miles distant, a settler who had just purchased four dry cells to install a telephone line to the next neighbor. The cells were purchased and the trip resumed with only a short delay.

Through that stretch, a distance of about 100 miles, they traveled at an average rate of about 10 miles a day, but there were many days when only one or two miles were covered. This required much work on the low gear and the consequent consumption of gasoline was far greater than had been anticipated.

They had taken on an extra supply of gasoline at Ashcroft, which they figured would supply them the remainder of the

journey, but when they reached Fraser Lake they found it would not carry more than half the distance to Burns Lake. But it was learned that gasoline lights were in use at Aldermere, 150 miles ahead. They wired to Aldermere and a supply of the fuel was sent down the trail on pack horses, meeting them before they reached Burns Lake.

Accidents were to be expected, and while the Flanders party was not disappointed in this respect, none of them proved serious. Once on a side hill so steep the car could not maintain a balance it toppled over, catching Driver Sands at the wheel. One of the axemen in the crew employed to slash the way for the machine rushed to the rescue and nearly demolished the car body, dragging Sands out to find that he had sustained only a badly lacerated hand and bruised leg.

Another accident before they had reached the worst part of the trail was narrowly avoided. It would have cost them the loss of the car and possibly the loss of Sands's life. They had just ferried across the Fraser River at Quesnel, leaving the beaten road and entering the uncharted region, when the ferryman neglected to secure his scow firmly to the river bank. At that point the river is swift and deep and the landing shot straight up from the water's edge at a precipitous angle. Sands backed to the farther end of the scow to get a running start, not knowing the scow was loose. The pull of the car as it raced for the shore drew the scow away from the bank. When the front wheel crossed the boat's edge it was six inches from the bank, and as soon as the rear wheels went over it was 18 inches from the shore. Sands did not know that he had been in peril until he reached the top of the bank, though the other members of the crew had seen it and watched in white-faced expectation to see car and man disappear in the stream.

Another prank of Fortune: Had it rained after they left Fraser Lake the car never could have gone through. At least, such is the opinion of Sands, and he ought to know. Though there were a few flurries of snow, no downpours came. But when they finally reached their destination they discovered that unless torrential rain came they could not get home again, as boats can reach the town only during high water.

They arrived at Hazelton at 9.40 o'clock Wednesday night, October 1st, and had their first sleep in a bed in three weeks. When they awoke next morning they gazed out on a flooding rainstorm. Three days later, after feasting and congratulations of the enthusiastic townsmen had reached the climax, they departed. Had they been a few days later the car, at least, would have remained at Hazelton until next spring.

There were scores of incidents of this nature that would require a huge volume in the telling. One other deserves mention. En route homeward they changed boats at Prince Rupert, B. C., and had ar-

ranged to take passage on the ill-fated Princess Beatrice, which went on the rocks on that same trip out of Prince Rupert. The plans were changed to save a couple of hours' time and they took a later boat, while the Princess Beatrice piled up on the rocky shore shortly after leaving port.

Though the run from Seattle to Hazelton showed only 1,281 miles by the speedometer, an idea of its severity on both car and crew may be gained from the fact that 10 tire casings were worn out. An idea of the hill climbing endured may be imparted by the fact that three sets of internal brake shoes were worn out. A set of these shoes in a hilly city like Seattle lasts at least a year, and three sets ordinarily will wear for about five years.

Sands estimates that of the 1,281 miles covered not more than 350 were traversed on the high gear, about 381 on the intermediate and 550 on the low gear.

When the car left Ashcroft, in southern British Columbia, it weighed 3,050 pounds, or an overweight of 650 pounds. When it reached Fraser Lake Sands found it necessary to remove the extra weight. En route from Ashcroft they had been forced to purchase a camping outfit, though this was meager because of the added weight it gave. At Fraser Lake two white men were employed as axemen and an Indian native was added to the crew as guide over the 'Telegraph trail'. A pack train of ten horses, for which they had to send 30 miles into the woods, was also added to the outfit to carry the supplies, the equipment removed from the car and the axemen and guide.

Thus equipped, the party fought its way through nearly 110 miles of wilderness to Aldermere, at the end of the road leading into Hazelton. They found the trail fairly well cleared, and were not compelled to do as much wood chopping as had been expected. The hills were not as large as had been anticipated, either, but their slopes, though short, were precipitous and so closely were they set to one another that the car frequently formed a bridge across the gullies between them.

Sands says there is little doubt that an excellent highway may be constructed through the region at nominal cost.

Hazelton, a town of probably 1,200 inhabitants at the head of navigation on the Skeena River, lies at the edge of North America's last great western frontier, where already a vast mining section has been discovered, and with the advent of practical transportation facilities is certain to experience a "boom" that will make it a great commercial center. It also is near a large area of farming land, as yet virgin, which awaits the wagon and railroad to become an important agricultural region.

The people of Hazelton, to whom the coming of the pathfinding car meant the certainty of a permanent highway and the opening of a new epoch in the history of the town and entire country, were wild with enthusiasm when the little machine

and its party finally rolled up in front of the town's biggest hotel.

At the time of the party's departure from Seattle—and, in fact, until the car was within 100 miles from its destination—odds of 10 to 1 were offered in Hazelton that it would never get through, and no one had faith enough in the attempt to take the wagers. Word had been sent out that the final 100 miles could be easily covered, over a highway traversed at regular intervals by an automobile stage. The pathfinders learned that this was a hoax. Only freighting wagons, drawn by 10- and 12-horse teams, carrying supplies out to the construction camp on the Grand Trunk Pacific Railway right-of-way, ever passed over the route, and the road for 100 miles was a succession of great ruts ranging from one to three feet in depth.

When they finally drew up in front of the Hazelton Hotel they looked up over their heads and saw, in the light of an arc lamp, a big white canvas stretched across the front of the balcony, on which was painted in huge letters the word "Bravo!" When word of their coming was received at Hazelton on the morning of that day the only automobile in town was dragged out and prepared to go out and meet them.

This car, a vehicle of mysterious vintage, had not been on the road for years. After several hours of tinkering and coaxing it picked up courage and made a dash of about 20 feet, then quit cold and firmly repulsed all further efforts to make it run.

Because the pathfinders did not show up before dark half the population of the town went to bed, thinking the party would not drive in until next morning.

The other half gathered in front of the hotel and cheered wildly when they heard in the distance the faint rattle of the Flanders "20's" exhaust. From the moment of the crew's arrival until their departure three days later their money was "no good." They were not permitted to buy anything, though they were urged to take anything the town possessed that they desired.

The banquet in their honor on the following evening, October 5, was the greatest event of its kind in the little city's history. Sixty men sat down to the spread, given under the auspices of the Business Men's Association, and before the meal's conclusion 173 bottles of champagne, which in that country costs \$5 a pint, were consumed. The menu consisted entirely of viands produced in that region, and the pathfinders declare that for quality it was unsurpassed by anything they had ever tasted in the United States.

Prest-O-Lite Plant for St. Louis.

The Prest-O-Lite Co. of Indianapolis has leased a plot in St. Louis, 475x180 feet, on Duncan avenue between Sarah street and Vandeventer avenue, on which will be erected a charging and repair plant. The lease covers a term of 15 years.

STORING A CAR DURING SNOW TIME

One Motorist Who Dodges Advice and "Camphor Treatment"—Also Cancels Insurance and Saves Money.

"When, at this time of year, I read the columns of advice on how best to store a motor car during the winter, I usually indulge in a quiet smile in my sleeve," remarked a man who does not lack experience. "If, when storing my car, I did half the things that the wise men advise should be done I fear that I would be gray haired before I got through doing half of them. I don't mean to say that the advice is not good advice, and that a car stored according to such directions may not be at least one per cent. better than cars which are not so treated, but I do know that I never have followed any of the voluminous suggestions or instructions and I cannot discover that my car is any the worse for it.

"Perhaps I am inclined to be careless, and perhaps if I had a garage of my own I might do otherwise, but as it is it does not take me very long to get my car ready for its winter sleep. Instead of practically dissembling it and applying vaseline or cold cream to each separate part and packing them in camphor, so to speak, about all I ever have done has been to remove all of the easily stolen accessories, drain the radiator absolutely dry, jack up the four wheels from the floor, let about three-quarters of the air out of the tires, and then cover the entire car with a heavy night-gown, so to speak.

"I have owned motors for all of ten years, and though each year they have been stored during all of the winter months I never have gone to more trouble than I have stated, and I have yet to find that my car is the worse for it.

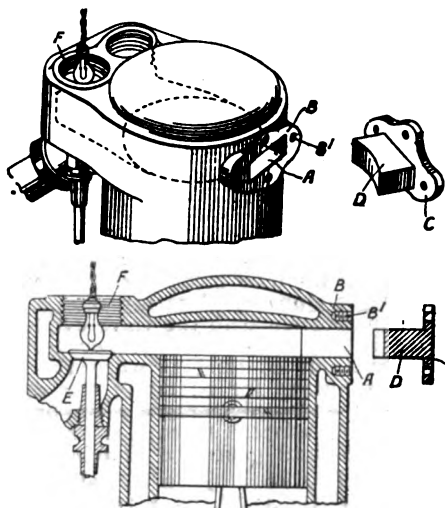
"Last year, however, I learned a new trick affecting winter storage that is worth knowing, and which very much more than paid the cost of several years' storage. When I put up my car I canceled all of the insurance which I carried, not only collision and personal liability insurance but fire insurance as well, which brought me a drawback or rebate from the insurance company of more than \$50. Also I did not store my car in a public garage. I discovered that there were several high-class storage warehouses which were bidding for automobile storage and that the charge of several of them was just about half of the amount exacted by the garages. I gave my garage man a chance to meet the storage warehouse prices, but he preferred to turn away the easy money.

"When I say that I canceled my fire insurance policy, perhaps I should explain that I took out another one covering the car while it was in the warehouse; and you can believe me or not, as you please, but it

is a fact that the difference in the price of the insurance between the garage and a warehouse of the sort is more than half the price for the winter's storage in the latter place. In the spring, of course, when the car is put into commission again, I renew all of the policies, canceling the warehouse fire insurance, which cancelation brings another small rebate or drawback. I find that comparatively few motorists who carry the several forms of insurance which every wise man should carry are aware of the fact that by canceling their policies before their cars are put away for the cold months they can save a pretty penny."

For the Easy Removal of Carbon.

With the laudable intention of simplifying the removal of carbon deposits from cylinders and piston heads, a British inventor has patented a method of construc-



HOW HEAD "PLUGS" CYLINDERS

tion which should make this otherwise more or less egregious task seem almost as easy as rolling off the proverbial log. As may be seen in the accompanying illustration, the end, is achieved by the simple expedient of equipping each cylinder with a removable plug, and though the idea is not entirely new, this is the first time it has been deemed of sufficient merit to warrant its being patented. W. C. Head is the patentee, and he contemplates the accumulation of royalties.

Level with the top of the piston, when it is at top dead center, a rectangular port, A, is provided. Into this port there fits a plug, D, which is made integral with the face-plate, C. The plug is held in place by means of four short cap screws and a ground joint between the face-plate and the cylinder insures the maintenance of compression. The removal of carbon merely necessitates that the plug be taken out and a suitably shaped scraper inserted in the opening, when both the top of the cylinder and the top of the piston may be cleaned. Inspection is simplified by the removal of a valve cap and the insertion of an electric lamp.

PEDESTRIANS HAVE NOT IMPROVED

Massachusetts Highway Commission Again Charges Them With Carelessness—What Its Report Shows.

The Massachusetts Highway Commission, which for several years has furnished the most reliable and accurate statistics regarding accidents occurring on highways and city streets, in its report issued on November 1, calls attention to the lamentable increase of motor car accidents in that State. In discussing the causes for this increase, however, the Commission repeats a previous assertion that pedestrians are responsible for by far the greatest number of the accidents in which they are concerned. Children, in particular, are a source of much trouble, by running into the streets and standing in front of approaching cars until they are almost upon them.

Classifying the accidents from December 1, 1910, to October 1, 1911, the Commission finds that in these ten months there occurred 83 deaths in highway accidents, 50 of which were pedestrians, 26 occupants of motor vehicles, five bicycle riders and two occupants of carriages.

For the year from December 1, 1909, to December 1, 1910, there were 77 deaths, of which 44 were pedestrians, 25 occupants of motor vehicles, four bicycle riders, three occupants of carriages and one street car passenger.

The number of injured up to the first of last month was 994, of whom 395 were pedestrians, 419 occupants of motor vehicles, 116 occupants of carriages, 55 bicycle riders and nine street car passengers. In the previous year there were 993 injured, 406 being pedestrians, 378 occupants of motor vehicles, 111 occupants of carriages, 64 bicycle riders and four street car passengers.

The total number of collisions in the 10 months ending the 1st of October was 1229, distributed as follows: With pedestrians 445, with other motor vehicles 153, with carriages, carts, etc., 190, with bicycles 65, with trolley cars 100, with poles, trees, posts, etc., 266 and with trains 10. The corresponding figures for the previous year were 1182 accidents, of which 447 were with pedestrians, 103 with other vehicles, 174 with carriages, carts, etc., 74 with bicycles, 90 with trolley cars, 288 with poles, trees, posts, etc., and six with trains.

The number of accidents in the daytime during the 10 months of this year compared with the 12 previous months was 897, against 867; after dark, 332, against 315; on country roads, 233, against 22; in city or town streets, 996, against 960. In the past month there were 10 people killed and 101 injured in 128 accidents, making the total number of killed that has been reported 93, and that of injured 1,095, in 1,357 accidents.



996,839. Resilient Tire. Alfred A. Curry, Bridgeport, Conn., assignor of one-half to Edwin B. Knowles and one-twentieth to Charles S. Canfield, Bridgeport, Conn. Filed Jan. 19, 1911. Serial No. 603,485.

1. A resilient tire comprising an inner rim, a series of disconnected nested complementary U-shaped springs alternately inverted and resting on said inner rim, an outer rim resting on and supported by said springs, means carried by the outer rim for detachably engaging the inner rim to secure the outer rim and permit oscillation thereof relative to the inner rim, said means being located to one side of said springs.

996,870. Automobile Rim Holding and Tire Pumping Device. Edward Charles McCullough, Greenwich, Conn. Filed Sept. 30, 1910. Serial No. 584,714.

A supporting stud, a frame mounted for rotation upon said stud, a plurality of radially arranged rods movably connected to said frame, each of said rods being provided with a transverse extension having a hook at one end and a threaded stud at the other, a cone collar upon each of said threaded studs, and a nut carried by each of the threaded studs and bearing against said collars, whereby clamping means are provided for supporting a wheel-rim upon the rods.

996,871. Vehicle Brake. John A. McGrath, St. Louis, Mo. Original application filed July 20, 1910. Serial No. 572,798. Divided and this application filed Oct. 29, 1910. Serial No. 589,679.

1. In a vehicle brake, the combination with a vehicle body and wheels, of a support adjacent to the wheels, a brake shoe, a pair of rollers carried by one of said latter named parts and a pair of inclined bearings carried by the other of said parts and co-operating with said rollers, and means for moving said brake shoe bodily around the wheel to cause said rollers and bearings to co-operate and apply the shoe.

996,882. Automobile Tire Pump. John J. Reddy, Jersey City, N. J. Filed Aug. 30, 1910. Serial No. 579,667.

1. In an air pump the mechanism for operating the same with foot power, similar to walking, comprising two pedal levers, each with vertical members and a horizontal member, a pair of A standards between and upon which said levers are fulcrumed, link bars pivoted in pairs to the short member of each lever, and also to the cross head of each pump, strengthening rods, pivoted to horizontal members and also to the short members of said lever, means for connecting the cross heads of said pumps.

996,883. Dynamo Electric Machine. Henry G. Reist, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Mar. 1, 1905. Serial No. 247,849.

1. In a revolving field structure, polar portions, windings surrounding said polar portions, and a brace engaging the adjacent sides of the windings surrounding adjacent polar portions, said brace having

a portion extending between the tips of the corresponding polar portions which serves as a barrier to limit the axial flow of air in the space between said polar portions.

996,897. Carburetter. Thomas A. Swartz, Columbus, Ohio. Filed May 19, 1910. Serial No. 562,195.

In a carburetter, the combination with a carburetting chamber having a valve controlled gasoline discharge nozzle therein, and means for conducting gasoline thereto, of an air inlet casing communicating with said carburetting chamber, a valve casing in said air inlet casing, a valve in said casing, a ring about said valve casing, said ring having a plurality of openings, and ball valves normally closing said openings.

996,922. Lubricator for Engines. Ulysses S. Greer, Greensboro, N. C., assignor of one-half to Proximity Manufacturing Company, Greensboro, N. C. Filed July 25, 1910. Serial No. 573,806.

1. A lubricator comprising an oil distributor, and a feed member provided with an internal automatically operated valve and adapted to enter one end of the distributor and discharge its contents therein by impact of said valve at the opposite end of the distributor.

996,925. Fluid Clutch. Augustine F. Hall and George Cuthbert, Philadelphia, Pa. Filed Apr. 18, 1910. Serial No. 556,010.

1. In a fluid clutch, a crank casing, a crank shaft working therein, pressure pistons connected with the crank shaft, valve cylinders, piston cylinders for the pistons in communication with the valve cylinders, valves in the valve cylinders controlling the movement of fluid between the two cylinders, means for operating the valves in unison, and a diaphragm plate on the crank casing adapted to expand under the influence of heat generated therein.

996,962. Nut Lock. John G. Baling, Baltimore, Md. Filed Feb. 24, 1911. Serial No. 610,651.

1. The combination with a bolt, or a nut having a portion of one of the threads thereof extended outwardly beyond the adjacent face of the nut and split for engagement with the treads on the bolt.

996,969. Acetylene Gas Package. Henry H. Buckman, Jr., Indianapolis, Ind., assignor of one-third to William J. Richards and one-third to Harmon H. Fulton, Indianapolis, Ind. Filed Dec. 1, 1910. Serial No. 595,139.

1. In an acetylene gas package, the combination of acetylene gas, benzophenone and a liquid absorbent for the acetylene gas.

996,981. Carburetter. Frederick G. Folberth, Cleveland, Ohio. Filed June 13, 1910. Serial No. 566,677.

1. In a carburetter, the combination with a casing having an air intake and a float chamber, of an automatically controlled valve for said intake, a fuel valve, a bodily adjustable lever connected to said air valve for controlling said fuel valve, and a support for said lever slidably mounted on said float chamber.

996,985. Retainer for Ball and Roller Bearings. Fritz Henzelman, Chicago, Ill., assignor, by direct and mesne assignments, to German American Ball Bearing Mfg. Co., Chicago, Ill., a Corporation. Filed Aug. 16, 1910. Serial No. 577,464.

A retainer for ball and roller bearings, comprising a pair of rings having a plurality of registering apertures therein, a plurality of pairs of spacer plates between said rings, and the plates of each pair having their corners turned oppositely, and lugs on the ends of said plates adapted to be secured in said apertures.

996,997. Spring Mounting for Vehicles. George W. Morris, Racine, Wis. Filed Jan. 20, 1910. Serial No. 539,150.

1. The combination with a vehicle body, a cylinder open at its lower end secured thereon, a hollow plunger open at its upper end adapted to slide and to rotate freely in

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said cylinder, a coiled spring inclosed within said cylinder and plunger and tending to prevent movement of said plunger into said cylinder, and anti-friction devices interposed between one end of said spring and its bearing whereby the rotation of said plunger relative to said cylinder may not cause said coiled spring to unwind, of a link connected with said plunger, a spring connected with said link and bearing on said cylinder and tending to prevent movement of said plunger out of said cylinder, and an axle connected with said plunger.

997,105. Engine Valve Mechanism. Oscar Treier, New York, N. Y. Filed July 12, 1910. Serial No. 571,594.

1. A valve mechanism for engines, comprising a hollow valve for the passage of the motive agent, a yielding mounted cap for engagement by the said valve to close one end thereof, and means for imparting movement to the said valve.

997,133. Lifting Jack. Charles E. Hylander and George F. Freed, Pittsburg, Pa., assignors to The Duff Manufacturing Co., Pittsburg, Pa., a Corporation of Pennsylvania. Filed Oct. 8, 1909. Serial No. 521,763.

1. In a lifting jack, a jack frame, a lifting ram movable therein, and an endwise removable pin seated transversely in the frame and having a guiding and holding engagement with the lifting ram, substantially as described.

997,159. Motor. Richard Star, New York, N. Y., Filed Dec. 6, 1909, Serial No. 531,600. Renewed Dec. 16, 1910. Serial No. 597,721.

1. In a motor, the combination of a casing, one part of which is provided with a series of inlet and outlet ports, abutting partitions dividing said casing into two substantially equal chambers, a shaft passing through said chambers and said partition, said shaft being provided in each chamber with a circular enlarged portion, having a slot therein, and a piston having movable ends arranged to slide in the slot in said shaft in each chamber, said pistons being arranged at right angles to each other, substantially as described.

997,161. Indicating Device for Vehicles. Herman J. Suelzen, Chicago, Ill. Filed June 8, 1910. Serial No. 565,746.

1. In a device of the class described, the combination of a casing; a clock mechanism; a record-strip mounted in said casing adapted to be fed therethrough; means for feeding said strip, said means being adapted upon the subjection of the device to vibration to feed said strip at the greater rate of speed than when the device is not subjected to vibrations; recording means adapted to act upon said strip; and an operative connection between said recording means and said clock mechanism, substantially as described.

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THE MOTOR WORLD

Vol. XXIX.

New York, U. S. A., Thursday, November 23, 1911.

No. 90

GENERAL MOTORS RETAINS DURANT

Settles Speculation by Re-electing Him a Vice-President and Director—All Other Officials Continued.

Despite a general belief that he was not in entire harmony with his associates in the General Motors Co., and that because of his activities in promoting two competing concerns—the recently formed Chevrolet and Little companies—he would retire or would be retired from the General Motors' directorate, W. C. Durant will not only remain a director of the big company but will be one of its vice-presidents, and also a member of its finance committee. This was decided, and some speculation thereby settled, at the annual meeting of the General Motors Co. which was held in Jersey City on Tuesday last, 21st inst., when all the incumbent officers and directors were re-elected, as follows:

Thomas Neal, president; W. C. Durant, vice-president; W. J. Mead, vice-president; Emory W. Clark, vice-president; Standish Backus, secretary; James T. Shaw, treasurer; C. A. Magee, comptroller.

Board of Directors: Joseph Boyer, M. J. Murphy, A. N. Brady, Thomas Neal, Emory W. Clark, James J. Storrow, W. C. Durant, Albert Strauss, Andrew H. Green, Jr., N. L. Tilney, J. H. McClement, James N. Wallace, Edwin D. Metcalf, Jacob Wertheim.

Finance Committee: Emory W. Clark, M. J. Murphy, W. C. Durant, Thomas Neal, Andrew H. Green, Jr., James J. Storrow, Edwin D. Metcalf, Albert Strauss.

Owosso Truck Cannot Expire Peacefully.

Although the directors of the Owosso Motor Co., of Owosso, Mich., had decided to peacefully wind up its affairs and go out of business, its going will not be quite so peaceful as it has been anticipated. Instead the company has been thrown into the bankruptcy court on a petition of several

creditors who allege that while insolvent the Owosso company committed an act of bankruptcy by making several small payments with the intent to prefer certain creditors. As a result of the bankruptcy petition, G. H. Gaffley, of Detroit, has been appointed receiver for the company which was organized to manufacture a light truck but which did not produce many of them.

Excelsior Appeals to Supreme Court.

The last has not yet been heard of the litigation involving the Parsons patent covering the Weed chain tire grip. The Excelsior Supply Co., of Chicago, which first upset the patent only to lose the advantage when the Weed Chain Tire Co. appealed from the decision, has carried its case to the United States Supreme Court. The application takes the form of a petition for a writ of certiorari which, if granted, will result in the review of the entire case by the Supreme Court. It is so rare, however, that this tribunal consents to review patent cases that the likelihood that it will do so in this instance is remote.

Big Bond Issue by Little Company.

W. C. Durant's most recent enterprise, the Little Motor Car Co., of Flint, Mich., which is capitalized at \$1,200,000, has recorded in Genesee County, Mich., a mortgage to secure a \$2,000,000 five year bond issue, for which the Detroit Trust Co. is trustee. The bonds, it is stated, were placed in Flint before the mortgage was drawn. C. M. Begile is president of the company and W. H. Little, long Durant's chief lieutenant, is vice-president.

Little Star That Failed to Twinkle.

Theodore M. Weiss, a stockholder in the Star Motor Co., of Indianapolis, has filed a petition in the Indiana superior court, asking that a receiver be appointed to take charge of the assets of the company. The company was organized in November, 1909, according to Weiss, and since that time he says only one motor car has been manufactured. The plaintiff charges that the concern is wholly insolvent.

SLEEVE VALVE LITIGATION BEGINS

Knight Strikes at Scotch Invention Through English Agents for Swiss Car—Wide Scope of His Claim.

Litigation involving the sleeve valve patents, which there was every reason to expect would not be long delayed, finally has begun; not on this side of the water, however, but in England where the sleeve valve principle—an American conception—first found recognition. The litigation was inaugurated during the London show on Monday, the 6th inst., when Charles Y. Knight and L. D. Kilbourne, the Americans who comprise the Knight & Kilbourne Patents Co., owners of the Knight patents, instituted proceedings against Donne & Willans, the London agents for a Swiss car which employs the so-called Argyll sleeve valve engine, and which operates under license from the Argyll Company of Scotland. The action alleges infringement of the Knight British patent No. 14,729 of 1905.

The suit, which it is believed will result in a general threshing out of the sleeve valve idea, was brought against the London firm instead of against the Argyll company itself because the latter has no registered address in England, and to proceed against the Argyll makers direct, Messrs. Knight and Kilbourne would have been compelled to go to Scotland and fight the case there. The Argyll motor, which only recently attained prominence, differs from the Knight engine chiefly in that it employs a single sleeve arranged concentrically with the cylinder, while the Knight uses two sleeves; also unlike the Knight sleeves, the Argyll sleeve moves circumferentially a short distance each way, as well as upward and downward. According to Mr. Knight this construction is quite like the first motor of the sleeve valve type which he constructed and is of the type with which he conducted his early experiments. It is his claim that his in-

vention really consists in the adoption or adaptation of the sleeve valve to the four-cycle engine regardless of the number of sleeves.

In bringing his invention to its present state of development, Knight figures that up to July last he and his associates have spent \$200,000, while his eleven licensees have spent about \$750,000.

To Produce a Gasolene Self-Starter.

For the purpose of manufacturing and marketing a new engine starter, the Motor Starting Co., 427 North Meriden street, Indianapolis, Ind., has been incorporated with the following officers: Lew Cooper, president; Eugene Davis, vice-president; Arthur M. Davis, treasurer and M. L. Wolf, secretary. These officers with L. E. Replogle form the board of directors. The new device operates on gasolene and though its principle is not entirely new, it differs from others of a similar nature in that the gasolene is taken directly from the main tank. The whole apparatus consists of a miniature carburetter, a small hand pump attached near the driver's seat and a pipe to each of the cylinders. By means of the pump a "charge" of gasolene and air is forced into the cylinders and the ignition spark does the rest. It is claimed that the device may be installed at less cost than any other, and that it is infallible, no less than 5,000 successive starts having been obtained without a miss.

Court Refuses to Halt Herreshoff Factory.

Despite the strenuous and united action of the residents of the vicinity of Woodward avenue and Boston boulevard in Detroit, who strenuously opposed the erection of the Herreshoff Motor Co.'s new factory in that neighborhood, and notwithstanding the legal action which they brought in order to prevent it, the factory will be erected. The neighborhood is a residential one, and the residents claimed that the factory would prove a nuisance. The Herreshoff company claimed otherwise and despite the legal proceedings continued building operations and late last week it won its case when Judge Donovan refused to issue the injunction restraining building operations, for which the neighbors applied. He ruled that they would have to wait until the factory proved to be a nuisance while in operation before the injunction could be granted.

Little Heads the Chevrolet Company.

Following its incorporation with \$100,000 capital stock, the Chevrolet Motor Car Co., of Detroit, finally has completed its organization by the election of the following officers: President, William H. Little, of Flint; vice-president and treasurer, Dr. E. R. Campbell; secretary, Curtis R. Hathaway; designer and consulting engineer, Louis Chevrolet; assistant secretary-treasurer, W. W. Murphy. Chevrolet is the well known racing driver, who has designed

the six-cylinder car which the company will manufacture. The other officials formerly were identified with either or both the Buick and General Motors companies, when they were dominated by W. C. Durant, who is the power behind the throne of the Chevrolet company.

Overland Factory in Canada Unlikely.

Although it was incorporated in June last, the fact that there is an Overland Automobile Co. of Canada, Ltd., just has found its way into print, coupled with the statement that John N. Willys, president of the Willys-Overland Co., of Toledo, Ohio, purposed erecting a factory in the Dominion and was seeking a site for the purpose. The statement to this effect served to bring a flood of site offers to the Overland people, but it is wholly improbable that Willys will erect a plant on the other side of the border at least for some time to come. At present he certainly is not seeking a site for the purpose, his far-seeing sales manager, George W. Bennett, having found that it is possible to ship completed cars into Canada at less cost than to send the separate parts and assemble them there. The incorporation of the Overland Automobile Co. of Canada, capitalized at \$250,000, was really to assist this purpose and to overcome certain peculiarities of the Canadian customs laws.

Taxicab Association Elects Officers.

C. C. James, who promoted the International Motor Service Association, of New York, and which is composed of some 1,600 taxicab and motor livery companies, has been elected president of that organization. John F. Murgrew, president of the Universal Taximeter Cab Company, of New York, was chosen vice president and T. P. Gleason, vice president of the Motor Wagon Delivery Company of St. Louis, secretary and treasurer. With the organization thus fully effected, the association is rapidly developing its plan of proving practically a national purchasing agency of supplies for taxicabs and delivery companies.

Curtis to Make Two-Purpose Jacks.

J. R. Curtis, of Springfield, Ill., is the moving spirit in the Curtis Jack and Truck Co., which has been incorporated in Missouri with \$75,000 capital stock, and which purposes establishing a plant in St. Louis for the manufacture of a combination jack and hand truck for the convenient handling of automobiles in garages. Curtis originally intended to locate in Detroit but was induced to select St. Louis instead, although he has not yet obtained the site for his plant.

Company to Expand the Walter Truck.

The Walter Motor Truck Co., of New York, has been organized and incorporated with \$100,000 capital stock to take over the business of W. Walter, who has been

manufacturing trucks in a small way at 49-51 West 66th street for the past several years. These trucks have given a good account of themselves, and it is to enlarge the business and increase the output that the new company has been formed. It shortly will occupy a factory on Broome street, New York, which is now in the course of erection, and will turn out five sizes of trucks, from 1½ to 5 tons capacity.

Stearns Completes Its Service Building.

The F. B. Stearns Co., of New York, has now completed its new service department building at 415-417 W. 55th street, between 9th and 10th avenues. The building is 60 by 100 feet, six floors and basement, and in every respect is a replica of the Stearns factory in Cleveland. It incorporates a machine shop, a forging shop and the various other departments which are necessary to car maintenance.

Miller Swells Capital to \$1,000,000.

The Miller Rubber Co., of Akron, Ohio, has called a special meeting of its stockholders for December 15th to pass on a proposed increase of the company's capital stock from \$500,000 to \$1,000,000. It is stated that not more than \$100,000 of the new stock will be immediately issued, and that it will be offered to stockholders at par in the ratio of one new share to each five shares now held.

Grossman Discontinues Chicago Branch.

Having made satisfactory arrangements for the representation of its Vanguard windshields and Swivelaction and Common Sense bumpers with the Empire Auto Tire & Supply Co., of 1219-21 Michigan avenue, the Emil Grossman Co. has given up its branch in Chicago. Its Detroit establishment, however, will be continued.

Metz Prepares for More Expansion.

The Metz Co., of Waltham, Mass., has acquired what is known in that city as the Governor Gore estate, on which it probably will build a new plant next spring. Offices of the company already have been removed to the Gore mansion and the room in the factory secured thereby will be employed for production purposes.

To Open Branch for Uptown Jobbers.

The Motor Car Equipment Co., of New York, has leased the premises at 238-240 West 56th street, New York, which will be conducted as an uptown branch. It will be ready for business about December 10th and, like the main office of the company at 55 Warren street, will be devoted wholly to the wholesale trade.

Diamond Establishes Oakland Branch.

The Diamond Rubber Co. has added still another branch to its long list, one in Oakland, Cal., which is located at 12th and Harrison streets. It is in charge of C. E. Mathewson.

RUBBER BROKERS FIGHT VERDICT

Federal Jury Awarded Pennsylvania Company \$11,000, But Losers Are Not Content—Echo of Rubber Boom.

Whether or not the H. A. Gould Co., rubber brokers, must abide by the decision of a jury in the United States Circuit Court for the Southern District of New York, ordering it to pay to the Pennsylvania Rubber Co., of Jeannette, Pa., the sum of \$11,138 as damages for an alleged breach of contract, is to be decided by the Circuit Court of Appeals for the Second District, Judges Lacombe, Coxe, Ward and Noyes. The appeal, which was filed October 25, 1911, and which was argued today, is the outcome of a suit for damages which the Pennsylvania company won.

The Pennsylvania Rubber Co., on or about May 13, 1909, entered into a contract with the H. A. Gould Co., by the terms of which the latter company agreed to furnish the Pennsylvania concern eight tons of Manicoba rubber of "regular" grade at \$1.10 per pound, and nine tons of "merchandable" grade at \$1.05 per pound. During the following two months the Gould company carried out its obligations in regard to the regular grade rubber, but was unable, on account of the shortage in the "raw" market at that time, to fulfil its agreement as to the "merchandable" grade. On request of the Gould company and explanation of its predicament, the Pennsylvania company agreed to waive its claim to the \$1.05 quality, and to take an equal quantity of "regular" grade at \$1.10 instead.

According to the complaint of the Pennsylvania company, it did not receive all of this quantity contracted for, nor was all of the rubber delivered up to the quality specified. Finding itself 17,000 pounds short, the Pennsylvania company claimed to have been forced to buy this quantity in the open market at greatly increased prices, and asked damages for the difference between the contract price and the market price. A jury in the Federal court decided that this difference amounted to 65 cents per pound, and awarded the plaintiff \$11,138 for the 17,000 pounds not delivered.

In its appeal against this verdict the Gould company alleges that the quality of some of the rubber returned by the Pennsylvania company as inferior was fully up to contract requirements.

After hearing the argument today, the Court of Appeals took the case under advisement.

Russia is Germany's Best Customer.

During the eight months ending August 31, 1911, Germany exported \$7,299,250 worth of motor cars, as compared with \$4,897,500 in the same period of the preceding year, an increase of exactly 50 per cent. Russia

was the best customer; Great Britain, United States and Argentine Republic followed in the order named. During the same period its imports increased from \$1,927,250 to \$2,007,625, a gain of \$80,375, or a little over 4 per cent.

Manhattan Storage "Busted" at Last.

David Grinberg and Adolph Morris, who for many years have been doing a somewhat fantastic and much mixed business in New York, under the style Manhattan Storage Co., finally have been forced into bankruptcy. Last month Grinberg's other enterprise, the Hayes Rubber Co., went the way to the bankruptcy court, and it now appears as if a semicolon, if not a period, in the history of the Grinberg-Morris partnership has been reached. The petition alleging insolvency was filed yesterday by the Lovell-McConnell Mfg. Co. (\$1,693) and two other creditors whose claims aggregate \$188. The liabilities are given as \$3,000, the assets of \$500, which is a sorry showing for two nimble men who once toyed with diamonds and walked on velvet even though they suffered an occasional and unpleasant interruption.

Cyprus Removes Duty on Motor Cars.

For the period of two years, beginning with November 1, 1911, automobiles, parts and accessories may be shipped to the island of Cyprus free of duty. The authorities of the little island desire to encourage the import of motor cars by temporarily removing the former excessive duty.

Republic Establishes a Detroit Branch.

The Republic Rubber Co., of Youngstown, Ohio, has opened a branch in Detroit at 1001 Woodward avenue. The branch will be conducted under the style the Republic Rubber Co. of Michigan, and will be in charge of C. P. Foley, formerly connected with the Firestone branch in Detroit.

Belgian Exports Increase 40 Per Cent.

Belgium, during the eight months ending August 31, 1911, exported \$3,293,180 worth of motor cars, as compared with \$2,334,365 worth in the same period of last year, an increase of \$959,815, or a little over 40 per cent. During the same periods imports of motor cars into Belgium increased from \$871,385 to \$884,515.

"Tire Preservative" Coming from St. Louis.

The recently organized National Rubber Co., of St. Louis, Mo., of which Eugene Swarzwald is president, has leased a plant in this city at 4414 Papin street. Among other things, the company purposes producing a "preservative" for automobile tires.

More Elbow Room for Remy Branch.

The Kansas City branch of the Remy Electric Co. has been moved from 416 East 15th street to No. 509 on the same thoroughfare. The new place will afford much needed elbow room.

GENERAL MOTORS RENDERS REPORT

Shows Big Reduction in Profits But Company in Fine Shape, Nevertheless—Heavy Orders in Hand.

Having, for the purpose of convenience, advanced the date of its fiscal year so that it now ends July 31, the annual report of the General Motors Co., which was made public this week, covers a period of ten months only. It discloses that during that period the Buick, Cadillac, Oldsmobile, Elmore, Oakland and the 15 other plants constituting the subsidiaries of the \$60,000,000 corporation earned a net profit of \$4,447,146, of which the big holding company's proportion was \$4,066,251.

On September 30, 1910, when the banking interests assumed control and refinanced and reorganized the company by floating a note issue of \$15,000,000, the General Motors' proportion of the profits for the fiscal year, which then ended on that date, was reported by the chartered accountants to be \$10,266,322.27; the gross profits were not given. The assets were stated to be \$51,995,468.76; and the liabilities, less the \$15,000,000 note issue, \$14,225,105.23. In arriving at the assets, the accountants reported that nothing had been included for "good-will, agreements, etc.," and that \$7,663,939.90 representing investments on other than motor car properties also had been excluded. This latter sum constitutes the item "good-will" in this year's report.

On the face of the returns, the company shows a shrinkage in profits of \$5,800,000, which is so large as to excite comment and for which it is difficult to account, even allowing for rose-hues which usually enter into prospectuses—for it was in a prospectus offering the General Motors' notes for sale that last year's profits were reported to be \$10,266,322.

In General Motors' circles, however, the apparent great shrinkage does not seem to be considered a matter of much moment. When seen by a Motor World man, Albert Strauss, the New York banker, who is a director in the big company, said that it was a matter for the accountants to explain and the accountants appeared to be at least mildly surprised and said it was a matter about which they could not talk, but one of them did let slip that this year's profits were "greater than had been expected." He vouchsafed that a consolidated or summarized statement such as had been issued left much to be desired and intimated that matters would be made plain, or at least plainer, by the detailed report, which will not be forthcoming for several weeks.

Whether the shrinkage of profits is as real as it is apparent, the report shows the company to be in good condition. It has met all dividends, taken advantage of all cash discounts, and prior to July 1 had re-

tired notes to the amount of \$998,000, which amount on October 1 had been increased to \$1,546,000, thereby reducing its funded debt to \$13,454,000.

The reserve fund for special purposes decreased from \$7,000,000 to \$3,203,076, while the surplus was lowered from \$2,797,493 to \$1,240,175.

On March 31, 1911, when the reorganization had been fully effected, the six months balance sheet was issued, rendering possible the following comparison with the figures for the ten months ended July 31 which just have been made public:

ASSETS.

	July 31, '11	Mch. 31, '11
Real estate, plants and equipment	\$17,632,682	\$15,253,870
Patents, agreements, etc.	2,049,831	1,815,719
Miscellaneous investments ..	354,803	506,140
Cash in banks and on hand ..	4,054,844	3,718,521
Notes and accts. receivable ..	4,637,076	4,230,347
Inventories	17,303,715	23,860,276
Prepaid expenses	191,179	40,976
Good will, representing excess of appraised value over book value of stocks of subsidiary companies owned, less reserve	7,663,938	14,853,855
Total	\$54,388,072	\$64,279,709

LIABILITIES

Preferred stock	\$14,393,500	\$14,422,300
Common stock	15,822,330	15,823,630
Funded debt	14,002,000	15,000,000
Outstanding capital stock ..	1,436,000	1,510,270
Surplus subd. cos.	1,169,527	1,216,239
Accounts payable	2,143,847	6,508,185
Liabilities accrued, not due ..	641,767	.....
Reserve for pfd. div.	335,848	.....
Reserves for special purposes	3,203,076	7,001,590
Surplus	1,240,175	2,797,493
Total	\$54,388,072	\$64,279,709

INCOME AND PROFIT AND LOSS.

The income account for the ten months ending July 31, 1911, follows:

Net profit, after deducting expenses of manufacture (including maintenance and depreciation), selling, administration, and taxes	\$4,447,146
General Motors Co.'s proportion thereof ..	4,066,251

Accrued interest on General Motors 6 per cent. notes	750,000
Balance	3,316,251
Preferred dividend (10 mos.)	842,074
Undivided profits	\$2,474,176
The profit and loss account follows:	
Profit and loss surplus Oct. 1, 1910	\$1,349,789
Miscellaneous adjustments (credit)	199,845
Total	\$1,549,634
Pfd. div. paid Nov. 30, 1910, out of surplus prior to Oct. 1, 1910	384,552
Balance	\$1,165,082
Profits for 10 mos. ending July 31, 1911 ..	2,474,176
Total	\$3,639,259
Reduction of inventories	\$2,000,000
Adjustment of claims	399,084
Total	2,399,084

Profit and loss surplus July 31, 1911

WORKING CAPITAL.

The net working capital as shown by the balance sheet July 31, 1911, amounted to \$23,065,353.20, as follows:

Current assets:	
Cash	\$4,054,844.21
Notes (\$220,650.00) and accounts receivable	4,637,076.73
Inventories	17,303,715.86
Prepaid expenses	191,179.74
Total current assets	\$26,186,816.54
Less current and accrued liabilities:	
Current accts. payable	\$2,143,847.03
Liabilities accrued, not due	641,767.98
Total	2,785,615.01
Total	\$23,401,201.53

From which deduct amount reserved for four months' proportion of Preferred Dividend No. 6, paid October 1, 1911

Net working capital

The aggregate outstanding preferred stock of the subsidiary companies is \$550,

000, of which the General Motors Co. owns \$500,000, the odd \$50,000 being stock of the Cartercar Co. The aggregate outstanding common stock is \$15,564,003, of which \$14,111,003 is owned by the General Motors.

In rendering his report, President Thomas Neal stated that whereas a year ago several of the factories were shut down and manufacturing operations much curtailed, all plants are now "in active and practically full operation."

"The outlook for the current year is excellent," he added, "and our companies at present are receiving orders faster than their factories can produce their cars, though every effort is being made to meet the demand."

Changes Among Prominent Tradesmen.

E. D. Whortley, formerly manager of the R. F. Goodrich Co.'s Dallas, (Texas), branch, has joined the staff of the Motz Tire and Rubber Co., Akron, Ohio.

M. Gehricke has been appointed manager of the Stromberg Motor Devices Co.'s Los Angeles branch. The branch itself has been removed to 945-7 West Main street.

A. J. Rosseau, formerly connected with the General Motors Co., has been appointed a district sales manager for the Imperial Automobile Co., of Jackson, Mich. He will handle the Mississippi Valley territory.

O. G. Baker has been appointed assistant to General Manager Mead of the Olds Motor Works, of Lansing, Mich. Baker is an experienced automobile man, having been engaged in the business in the East.

Charles E. Stone has resigned the Sales management of the United States Motors Co.'s truck department, and, for the time being at least, will set up for himself in the Times building in New York. His successor has not yet been named.

Having acquired an interest in the Commercial Car Sales & Service Co., which will handle Autocars in Chicago, K. B. Harwood has resigned as general manager of the Auto Car Sales Co., of New York. He has been succeeded by C. M. Allen.

E. P. Horton, manager of the United States Motor Co.'s branch in Syracuse, N. Y., has been transferred to the management of the United States Motor Atlanta Co., in Atlanta, Ga. Horton has been identified with the Maxwell interests for seven years.

Geo. L. Sullivan, until recently automobile editor of the New York Tribune, has been added to the sales staff of the American Locomotive Co. and henceforth will have to do with Alco cars and trucks. H. C. Whitney, who previously was attached to the Gramm Truck establishment also has joined the Alco sales force.

Following the merging of the sales departments of the Rapid and Reliance Divisions of the General Motors Truck Co., L. J. Fasquelle has been appointed general sales manager of the truck company. E.

F. Myers, formerly sales manager of the Rapid Division, has been appointed manager of the General Motors Truck Co.'s service department.

E. A. Bessom, formerly a member of the engineering staff of the Stevens-Duryea and E. R. Thomas companies, and more recently of the American-La France Fire Engine Co., has joined the engineering force of the Stromberg Motor Devices Co., of Chicago. His accession will enable the Stromberg laboratory work to be conducted on a larger scale than ever.

John H. Eagal has been appointed district manager for the Oldsmobile Co. of California, with headquarters in San Francisco. He will have charge of the Oldsmobile interests in all of the Pacific Coast States. Eagal is well known in his territory, having had five years' experience as manager of the Studebaker branch in San Francisco and during the past year having been connected with the Oldsmobile agency in San Francisco.

Chile Classes Parts as "Vehicles."

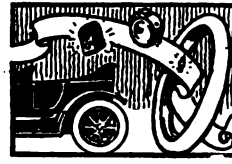
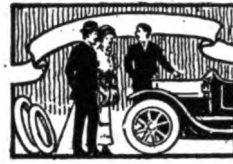
The Chilean government has decreed that henceforth automobiles shall be subject upon importation to the duty of 60 per cent. ad valorem, as covered by the designation in the tariff of "vehicles" of all kinds. The decree specifies further that the duty shall apply whether the automobile is imported complete or the parts are imported separately. This provision is aimed particularly at motors for automobiles, it being held by the customs authorities that the motor is an integral part of the vehicle, and that, though the motor and the running gear be imported separately, they should be subject to the same rate of duty. Some firms had been importing the motors separately from the rest of the automobile, in order to enter them under provision 7 of the tariff law of December 23, 1897, which grants free admission for machines to be used in agriculture, mining, arts, trades, and industry.

Self-Starters and Electric Lights for Cole.

Following extended experimenting at the factories of the Cole Motor Car Co., Indianapolis, Ind., it is announced that the 1912 Cole cars will be equipped with engine starters and dynamo electric lights systems. The starter adopted is the product of the Prest-O-Lite Co., and the electric lighting system is that manufactured by the Ward-Leonard Co.

Abbott No Longer Draws Color Line.

Bodies finished in any color, to order, and without extra cost is one of the unusual inducements offered by the Abbott-Detroit Motor Co., of Detroit, Mich. Hereafter purchasers will not be limited to stock colors, but may specify any particular hue they like and cars will be finished according to their request, without advance in price.



L. C. Burwell and B. F. Clark are building a garage at Laurens, Ia.

George Rhode has opened a garage and repair shop in New London, Wis.

C. H. Voegelé has opened salesrooms in Mansfield, Ohio. He will handle Velie cars.

George Stroh is building a big garage on Grand boulevard, near Waterloo street, Detroit, Mich.

Louis V. Arcenson has broken ground for a brick garage at Central avenue, Newark, N. J. It will cost \$12,000.

Harry A. Nelson is building a two-story brick garage on West Eighteenth street, Erie, Pa. It will cost \$8,000.

At a cost of \$15,000 Walton A. Crandall is constructing a three-story garage on Water street, Binghamton, N. Y. He will operate a livery business.

The Johnson Carriage Co., of Riverside, Cal., has decided to add automobiles to its business and is building a garage and repair shop, 54 x 100 feet.

The business of Sherwood & Phillips, owners of a garage at Hector, Minn., has been taken over by A. M. Ericson. He will show the Studebaker line.

Kirk & Co. have broken ground for a garage at 215 Crown street, New Haven, Conn. The structure will be of concrete and brick and will cost \$40,000.

The Duval Automobile Repair Works has been formed at Jacksonville, Fla., with R. Kloeppel as owner-manager. It is located at 419 West Forsyth street.

A brick, steel and concrete garage is at present in course of erection at 136 North Thirteenth street, Lincoln, Neb. Charles Stuart is building it at a cost of \$25,000.

Harry Pew has purchased a piece of property on East Main street, Morristown, N. J., on which to erect a garage. He will do a general renting and repair business.

Carlos Armstrong & Sons, Ponce, Porto Rico, have engaged in the automobile business in that city. They will have the agency for Cole cars for the entire island.

Grantley P. Postles has opened a garage and salesroom at 220 West Tenth street, Wilmington, Del. He will handle Bergdoll, Cadillac and Thomas cars and Mack trucks.

A new garage is in course of construction at Westfield, N. J. It is located at the corner of Central and Lenox avenues and will be under the management of C. E. Curtis.

Harry Parker has taken charge of the Kalamazoo (Mich.) Motor Co., West Water street. He has the agency for

Hudson cars for three of the surrounding counties.

C. Elmer Weber, a former newspaper reporter of Streator, Ill., has opened an automobile salesroom in New Orleans, La. He has the Louisiana distribution of Halladay cars.

The Pauly-Bruce & Goldacker Co., which recently was formed in Milwaukee, Wis., to succeed the McDuffee Auto Co., has opened salesrooms at 222 Fourth street. It handles the Stoddard-Dayton line.

The Woodhouse-Lough Engine & Machine Co., of Plainfield, N. J., has added automobiles to its other business. It has secured the Franklin agency, which formerly was held by the F. L. C. Martin Co.

John Knox, one of the "old timers" in New Haven, Conn., has opened a new garage at 677 State street. The building is said to be one of the largest in this section of the country; it covers an area of 14,000 square feet.

Ernest Dick and George Laughlin have formed a partnership under the style Dick & Laughlin, for the purpose of taking over the Buick agency in Quincy, Ill. They will locate in the store vacated by the Kurz Machine Co.

The Pope Piano Store, of Little Rock, Ark., discovering a lull in the sale of the "instrument of tune and torture," has added automobiles to its other merchandise. It will show Case cars at its salesrooms, 706 Main street.

The Buchanan Auto Co. has been formed by Edward Rhodus and Henry A. Berger at St. Joseph, Mo., with headquarters on Frederick avenue. The new company will handle E-M-F, Flanders, Overland and Rambler cars.

The Warren Motor Co. has been formed at Jacksonville, Fla., with salesrooms at the foot of Laura street. Cecil C. Robertson is general manager of the company, which, as the name implies, will sell Warren-Detroit cars.

The Citizens' Motor Co., of Cincinnati, Ohio, has found its old quarters too small and is building a three-story garage and salesroom of reinforced concrete, brick and terra cotta on East Seventh avenue, at an estimated cost of \$38,000.

C. E. Stone, of Madrid, Ia., has leased the repair department of the Elkader Auto & Supply Co., in the Iowa town of that name. The sales department, which offers E-M-F and Flanders cars, will remain under the old management.

The United Car Sales Co. is the style of a new company which just has been organ-

ized in Marinette, Wis., by Myron Churchill and Harold Scott. They have opened salesrooms at 1351 Main street, where they will show Buick and Kissel cars.

H. C. Briscoe and L. R. Colbert have purchased the automobile business of the Fredericksburg Buggy Co., in the West Virginia city of that name. They will operate under the style of Fredericksburg Motor Co., and will handle Ford cars.

The Youngstown Wagon Co. has moved into its new building at Boardman and Walnut streets, Youngstown, Ohio, which is said to include one of the finest garages in the whole country. The company handles the E-M-F and Flanders lines.

The Brown-Corley-Ellis Co., of Des Moines, Mich., has opened a garage and showroom at the corner of West Fourth street and Grand avenue, where it will show the Lozier line. It has the distributing agency for the State of Iowa.

W. A. Dale, president of the Maury Motor Co., Columbia, Tenn., has sold his interest in the concern and resigned the presidency. His holdings were purchased by Warren Titcomb, while J. M. Dedman, another stockholder, succeeded to the presidency.

O. A. Lawton, former New England branch manager of the Franklin Automobile Co., of Syracuse, N. Y., has opened temporary salesrooms at 31 Irvington street, Boston, Mass. The branch has been discontinued and Lawton will handle Franklin cars in his own name and on his own account.

The D. A. Baldwin Co., which conducted an automobile repair shop and storage department at 22 Commercial street, Worcester, Mass., has been reorganized under Massachusetts laws, with \$40,000 capital. The new company will operate under the style Acme Motor Car Co. Ernest O. Wheeler, treasurer of the Baldwin company, occupies the same office in the new concern, while William Vincent is president and A. D. Watson, secretary.

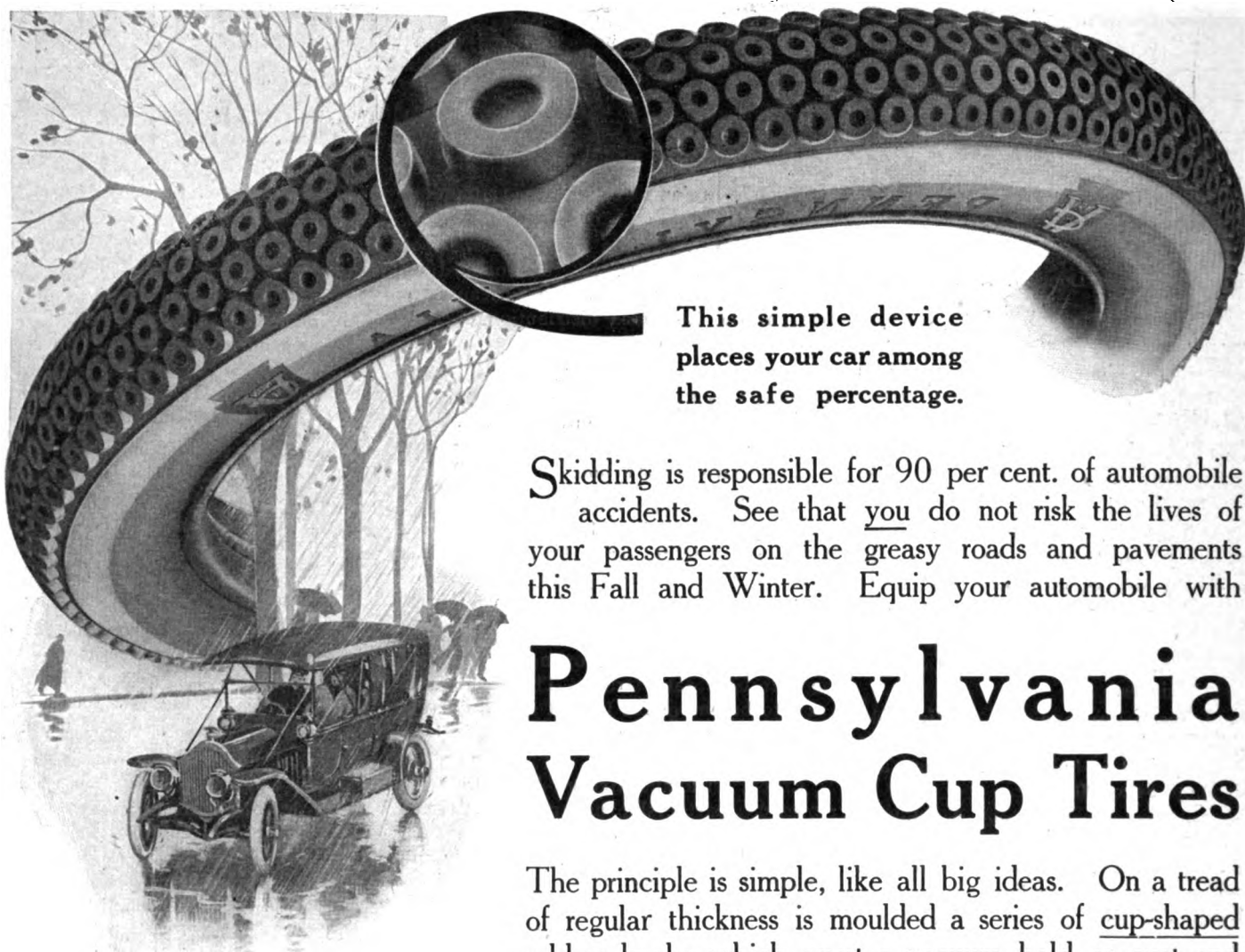
Recent Losses by Fire.

Lewiston, Mont.—R. W. Reynolds's garage destroyed. Loss, \$5,000.

Peoria, Ill.—Avery Mfg. Co., several buildings with contents destroyed. Loss, \$150,000.

Buffalo, N. Y.—Jefferson Automobile Works, Jefferson and Virginia streets, and twelve cars burned. Loss, \$25,000.

Ottawa, Ont.—McVeity & Blackburn, garage and forty cars destroyed. Loss, \$100,000, partly covered by insurance.



This simple device
places your car among
the safe percentage.

Skidding is responsible for 90 per cent. of automobile accidents. See that you do not risk the lives of your passengers on the greasy roads and pavements this Fall and Winter. Equip your automobile with

Pennsylvania Vacuum Cup Tires

The principle is simple, like all big ideas. On a tread of regular thickness is moulded a series of cup-shaped rubber knobs which exert a vacuum hold on wet and greasy pavements. Slipping in any direction is impossible. The rolling of the wheel releases each cup automatically by raising one side first, so that forward speed is not retarded.

In snow and mud the knobs sink in and provide a better hold and better "traction" than any other form of non-skid.

Longer Service is a strong feature of Pennsylvania Vacuum Cup Tires. Even when the rubber knobs wear down, the tire is still as good for service as a smooth tread tire of regular thickness.

You combine the essential qualities of Safety and Economy by using these non-skid and long wearing tires.

SOLD BY THE BEST DEALERS EVERYWHERE

PENNSYLVANIA RUBBER CO., Jeannette, Pa.

(Reorganized February 1st, 1910)

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Pennsylvania Rubber Co. of New York
New York City, 1700 Broadway

Pennsylvania Rubber Co. of California
San Francisco, 512-14 Mission St. Los Angeles, 930 So. Main St.



Trade Mark



PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

154 NASSAU STREET, NEW YORK, N. Y.

A. B. SWETLAND.....President

F. V. CLARK.....Secretary-Treasurer

R. G. BETTS.....Managing Editor

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) \$2.00
Single Copies (Postage Paid) 10 Cents
Foreign and Canadian Subscriptions \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, NOVEMBER 23, 1911.

For an Inter-City Team Contest.

In urging the promotion of a touring contest between teams representing the automobile clubs of Chicago, Detroit and Indianapolis, as a form of competition that will quicken sportsmanlike interest and that otherwise is worth while, Mr. Will H. Brown, of Indianapolis, himself a figure in the automobile industry, strongly advises that the contest, if undertaken, be restricted to private owners. "It is the private owner," he says, "who does the most good for the sport."

The Motor World hopes that Mr. Brown's suggestion will not fall on barren soil. It hopes that the idea of an inter-city contest between teams of private owners will be enlarged to include more than the three cities named. Such an event can be made the "biggest thing that ever happened," and create more real interest. It would be positively "bully." As the Motor World more than once has suggested, one or the other of the national trade associations might profitably and gracefully provide a perpetual trophy for a contest of the sort.

To all who care to see, it is becoming increasingly plain that automobile racing,

whether on track or road, is becoming a matter of and for professional promotion and professional promoters and drivers. The private owner has no part in it, and the trade itself is almost through with it. There soon will be no real sport left unless something is done to interest the private owner, and the surest means of interesting him and of arousing interest is an inter-city team contest such as Mr. Brown suggests.

The "Arrival" of the Self-Starter.

In the full sense of the word, the self-starter was a long time "arriving," but that it finally has "arrived" admits of small argument. It came with such a rush in the last two months that it is certain that 1912 will rank as the "self-starter year."

The self-starting device constitutes more than a mere talking point. It is a selling feature that is not to be denied and withal it is a useful feature—one the need for which long has been recognized and which serves such purposes and which has been so much desired that the wonder is that the device has been so long "arriving" on practical form.

Undoubtedly the immensely increased interest in and demand for such devices will give birth to a flood of half-baked inventions, and it is equally undoubted that some of the more conservative automobile manufacturers will refuse to adopt a self-starter of any sort until they have found one or developed one that they consider befitting their use and their respective reputations. But not even such caution and conservatism long can withstand the combined pressure of public opinion, public demand and the unmistakable trend of the trade. Though the forthcoming year may be marked by some opposition to self-starting devices, it will be opposition that is more apparent than real, or earnest, and will be in nature of "sparring for wind" on the part of individual manufacturers who perhaps prefer to be absolutely sure before going ahead.

One thing is certain: The starting crank almost literally is giving its last kick. Its almost complete disappearance within a twelve-month is fairly safe prophecy and none there are who will be sorry to see it go. It soon will be as obsolete as the rear-entrance tonneau, and with it will go as much discomfort and far more toil and danger than ever attended the use of that now archaic type of body.

The bare suggestion of starting a car merely by turning a small cock or pushing a button sounds so good that it cannot well fail to prove a factor in influencing sales.

Mixing Politics and Road Improvement.

Being so largely a governmental function, perhaps it is too much to expect that when the matter of road improvement is discussed in public meeting politics will not enter into the discussion. But when a government employe, however high sounding may be the title he bears, undertakes to stifle free expression of opinion on the occasion of a gathering styled a National Good Roads Congress, it surely is "too much" and a little bit more, even though the Congress may have been called and fathered by a small organization with a large name, that the government employe carries in his vest pocket. Which is to say that Mr. Logan W. Page, director of the Bureau of Roads in the United States Department of Agriculture and president of the American Association for Highways Improvement, which is composed largely of public employes, rather overshot the mark when at the National Good Roads Congress in Richmond, Va., which was promoted largely by himself, arbitrarily declared as chairman of the meeting that he would entertain no motions which favored Federal appropriations for road building. It is small wonder that his action created a hubbub and that despite his ruling the committee on resolutions by a vote of 7 to 2 favorably reported a resolution asking for Federal aid. It may be well for Mr. Page to bear in mind that the Federal aid movement is attaining such strength that it is not unlikely soon to be strong enough to roll over and flatten even the director of a road bureau who may appear to have fortified himself with a nice little private highway improvement association.

After spending several weeks in this country, during which he visited not a few factories, even so competent and so fair a critic as the editor of the Automobile Engineer returned to England with the impression that stampings and drop forgings are one and the same thing, which will serve to give a distinct shock to those engaged in those separate forms of manufacture. The British editor tells his readers that "stamping, or drop forging as it is called in America, has been developed to a high degree of perfection."



Seattle, Wash.—Thomas-McKay Co., under Washington laws, with \$5,000 capital; to deal in automobiles. Corporators—J. D. Thomas, William O. McKay.

Paris, Ill.—Paris Auto Starter Co., under Illinois laws, with \$10,000 capital; to manufacture automobile parts. Corporators—Frank C. Fishback, Paul P. Shutt.

Indianapolis, Ind.—Antidam Manufacturing Co., under Indiana laws, with \$10,000 capital; to deal in automobile parts. Corporators—R. P. Irwin, J. M. Irwin, George R. Bott.

Los Angeles, Cal.—Pathfinder Motor Co., under California laws, with \$50,000 capital; to deal in automobiles. Corporators—H. H. Hawkins, D. J. Gonyer, I. N. Johnston.

Birmingham, Ala.—Auto Tire and Cycle Co., under Alabama laws, with \$2,000 capital; to deal in automobile tires and motor vehicles. Corporators—Reese Stansell, W. R. Grimes.

Indiana Harbor, Ind.—The Central Auto Supply Co., under Indiana laws, with \$600 capital; to deal in automobile supplies. Corporators—C. C. Robinson, F. E. Stephens, B. S. Gardner.

Pittsburg, Pa.—The Krupps Motor Co., under Delaware laws, with \$250,000 capital; to manufacture motors. Corporators—D. Morgan, E. G. H. Anderson, J. McMorran, all of Pittsburg.

Chicago, Ill.—Harder Autotruck Co., under Illinois laws, with \$100,000 capital; to manufacture and deal in motor vehicles. Corporators—Henry P. Chandler, J. M. Johnson, K. Cornwall.

Hartford, Conn.—The Pyramid Automobile Co., under Connecticut laws, with \$5,000 capital; to deal in automobiles and maintain a garage. Corporators—Walter H. Goodrich, Henry P. Johnson.

Indianapolis, Ind.—The Co-operative Automobile Supply Co., under Indiana laws, with \$25,000 capital; to deal in automobile supplies. Corporators—B. H. Rifenburg, J. C. Curtis, J. H. Boesinger.

Columbia, S. C.—The Consolidated Auto Co., under South Carolina laws, with \$5,000 capital; to deal in automobiles and accessories. Corporators—J. B. Roddey, W. W. Pearce, J. P. Matthews, John J. Cain.

Portland, Maine—Hamlin-Foster Auto Co., under Maine laws, with \$100,000 capital; to maintain an automobile school and deal in automobiles and motor vehicles. Corporators—A. D. Hamlin, A. S. Ventres.

New York City, N. Y.—Wishart-Dayton Auto Truck Co. of New York, under New York laws, with \$25,000 capital; to deal in

motor vehicles. Corporators—R. A. Inch, S. E. Wishart, J. B. Smith, all of New York City.

Chicago, Ill.—Empire Auto Top and Supply Co., under Illinois laws, with \$25,000 capital; to deal in automobiles, vehicle tops and automobile supplies. Corporators—Henry Graff, Jr., Albert N. Charles, Joel E. Bullard.

New York City, N. Y.—Trautman Air Rubber Tube Co., under New York laws, with \$100,000 capital; to manufacture automobile and other tires. Corporators—I. Trautman, A. V. Denis, W. G. Newhall, all of Brooklyn, N. Y.

Summit, N. J.—The Dustoline For Roads Co., under New Jersey laws, with \$50,000 capital; to manufacture a liquid known as Dustoline for roads, and other oils. Corporators—E. R. Lamsen, W. J. Lamsen, F. L. La Row.

Kittery, Maine—The Shaw-Lundin Auto Co., under Maine laws, with \$10,000 capital; to deal in automobiles. Corporators—Burton W. Shaw, Newton Center, Mass.; Thomas F. Malone, Dorchester, Mass.; Horace Mitchell, Kittery.

Indianapolis, Ind.—Motor Starting Co., under Delaware laws, with \$1,000,000 capital; to manufacture and deal in a motor starting device. Corporators—L. E. Wales, Wilmington, Del.; E. Replogle, L. W. Cooper, both of Indianapolis, Ind.

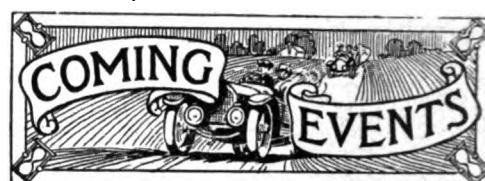
Jefferson, N. Y.—The Francis Motor Sales Co., under New York laws, with \$5,000 capital; to deal in automobiles and motor vehicles. Corporators—M. Francis, Worcester, N. Y.; Richtmyer Hubbell, Charles E. Nichols, both of Jefferson.

Boston, Mass.—White, Binford & Robinson Motor Co., under Massachusetts laws, with \$20,000 capital; to deal in automobiles. Corporators—Albert C. White, Jr., Brookline, Mass.; Cecil P. Robinson, Allston, Mass.; Henry O. Cushman, Boston, Mass.

Southampton, N. Y.—Walter Motor Truck Co., under New York laws, with \$100,000 capital; to manufacture and repair automobiles and motor vehicles. Corporators—W. Walter, E. L. Walter, both of New York City, N. Y.; C. W. Fletcher, Englewood, N. J.

Cincinnati, Ohio—Fischer Auto and Service Co., under Ohio laws, with \$30,000 capital; to deal in automobiles and maintain a motor vehicle service. Corporators—H. J. Guckenberger, Arthur G. Fischer, George C. Bauer, George Guckenberger, Jr., William J. Fleming.

Frederick, Md.—The Ideal Garage Co., under Maryland laws, with \$30,000 capital; to manufacture and deal in automobiles, accessories, and maintain a garage. Corporators—Grayson H. Staley, Elias B. Ramsburg, Samuel G. Duvall, Charles H. Conley, Thomas O. White, J. Windsor Williams.



November 20-25, Indianapolis, Ind.—Indianapolis Automobile Trade Association's fall opening.

November 27, Savannah, Ga.—Vanderbilt Cup races under auspices Savannah Automobile Club.

November 30, Savannah, Ga.—Grand Prize road race under auspices Savannah Automobile Club.

November 30, Los Angeles, Cal.—Race-meet at Los Angeles Motordrome.

December 20, New York City, N. Y.—Annual banquet of the Automobile Club of America at Waldorf-Astoria.

December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

December 30-January 6, Buffalo, N. Y.—Buffalo Automobile Trade Association's annual show in 74th Regiment Armory.

January 2-10, New York City, N. Y.—Importers' salon at Hotel Astor.

January 6-13, New York City—Automobile Board of Trade's 12th annual show in Madison Square Garden. Pleasure vehicles only.

January 10, 13, Peoria, Ill.—Peoria Automobile Club's show in the Coliseum.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual national show in New Grand Central palace. Pleasure and commercial vehicles.

January 13-19, Milwaukee, Wis.—Milwaukee Automobile Dealers' Association's annual show in Auditorium.

January 13-27, Philadelphia, Pa.—Philadelphia Automobile Trade Association's annual show in First and Third Regiment Armories.

January 15-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden. Commercial vehicles only.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

January 22-27, Providence, R. I.—Rhode Island Licensed Automobile Dealers' Association's show in the State Armory.

January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association's annual show at Wayne Garden.

January 27-February 3, Chicago, Ill.—National Association of Automobile Manufacturers' 11th annual national show in the Coliseum and 7th Regiment Armory. Pleasure vehicles only.

February 3-10, Montreal, Can.—Automobile Club of Canada's annual show at Drill Hall.

READY FOR SAVANNAH'S BIG BILL

**Late Entries Assure Representative Fields
in the Four Races—Men Who Will
Start—The Arrangements.**

There have been speed carnivals North, South, East and West, but in point of real promise none ever promised more than half as much as does the road racing carnival that will take place in Georgia, which is in the South, between Monday next, November 27th, and Thanksgiving Day, November 30th. The Savannah Automobile Club is responsible for it all and the scene of contest, while not in Savannah itself, will be on the outskirts of the city and over a course which has been groomed and massaged, and manicured as no course

do not close, officially, until to-night (Thursday) and in the mean time, there is

FOR GRAND PRIZE GOLD CUP

Distance 415.2 Miles—24 Laps.

David L. Bruce-Brown.....	Fiat
Louis Wagner	Fiat
Caleb Bragg	Fiat
Victor Hemery	Benz
Eddie Hearne	Benz
Erwin B. Bergdoll.....	Benz
Ralph Mulford	Lozier
Louis Nikrent	Marmon
Cyrus Patschke	Marmon
Carl Limberg	Abbott-Detroit
L. A. Mitchell	Abbott-Detroit
Louis Disbrow	Pope-Hartford
Charles Basle	Buick
Harry H. Cobe.....	Buick

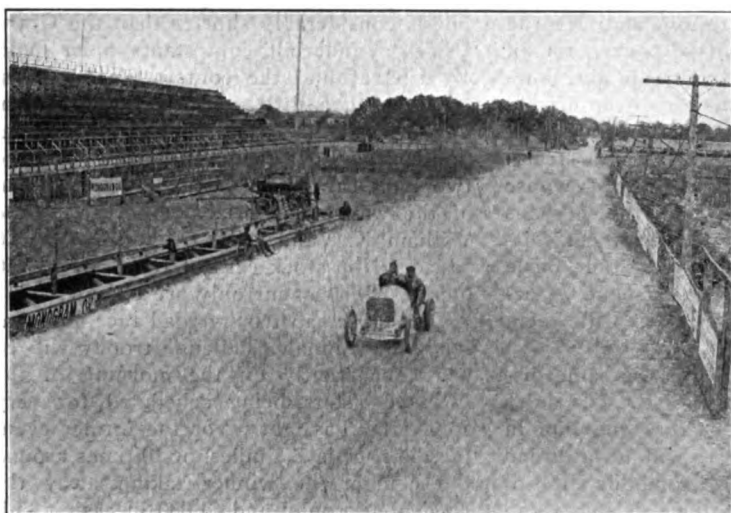
FOR VANDERBILT CUP

Distance 294.1 Miles—17 Laps.

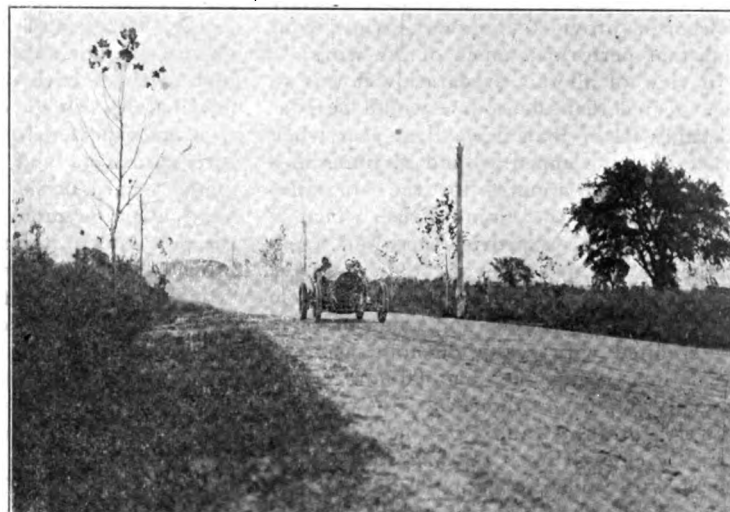
David L. Bruce-Brown.....	Fiat
E. H. Parker.....	Fiat
Joe Matson	Fiat

Kulick and his redoubtable Ford will start in the shortest race and that an Ohio car, for which no driver has been selected as yet, will come to the line in the Savannah Challenge event.

The Savannah club has demonstrated that it knows how to conduct such events and to conduct them properly. It has the ears and the active assistance not only of the officials of the city of Savannah alone but of the whole State of Georgia as well. They all pull together, and it is due to this fact that previous events have been among the most successful on the calendar, though the very important part played by the militia cannot well be overlooked. It is to these citizen soldiers that a large part of the credit for "accidentless" races is due. While there have been sad spills in practice, there never has been an accident during a race on the Savannah course. Rather, there has been one—a spectator was jabbed be-



HEARNE (BENZ) AND THE SAVANNAH HOMESTRETCH



DAWSON (MARMON) ON THE WATERS ROAD

ever was groomed and manicured before.

As a rescuer of classic road races, the Savannah Automobile Club is beyond compare. It rescued the Grand Prize race three years ago when it was purely a "spite event," and this year it threw out a life line to the most classic of all classics—the Vanderbilt cup race—at a moment when it was a case not of surviving, but of perishing. Not to mention the two minor events, the Savannah Challenge trophy and the Tiedeman trophy races, the running of the Grand Prize and the Vanderbilt on the same course and within two days of each other, as will be the case at Savannah, will be more than enough to make the Georgia carnival the "greatest ever."

In doing the rescue act this year, however, this same Savannah Automobile Club has had an unusually hard row to hoe. It has been none too easy to induce entrants to sign up. And yet in spite of this reluctance, it has succeeded in lining up 14 cars for the Grand Prize, a like number for the Vanderbilt, seven for the Savannah trophy race and four for the "baby" event, the Tiedeman trophy race. But the entries

Ralph De Palma.....	Mercedes
Spencer E. Wishart.....	Mercedes
Harry Grant	Lozier
Ralph Mulford	Lozier
Louis Nikrent	Marmon
Cyrus Patschke	Marmon
Hughie Hughes	Mercer
Harry H. Cobe.....	Jackson
Carl Limberg	Abbott-Detroit
L. A. Mitchell	Abbott-Detroit
Louis Disbrow	Pope-Hartford

**FOR SAVANNAH CHALLENGE
TROPHY**

Distance 224.9 Miles—13 Laps.

Louis Disbrow	Case
Hughie Hughes	Mercer
William Knipper	Mercer
W. F. Barnes, Jr.....	Mercer
Louis Nikrent	Marmon
Cyrus Patschke	Marmon

FOR TIEDEMAN TROPHY

Distance 173 Miles—10 Laps.

Jack Tower	E-M-F
Frank De Witt.....	E-M-F
Robert Evans	E-M-F
R. L. Hartman.....	Abbott-Detroit

a prospect that these numbers will be still further swelled. It is rumored that Frank

tween the house and the barn with a bayonet in the hands of a soldier for the simple reason that he insisted on walking across the course when the soldier was there to keep him off it. But this merely proves the zealous way in which the improvised course guards perform their work, and if it were not for their presence there would not be any racing at all. The rule book of the American Automobile Association states that there must be guards, and Georgia provides good ones.

Though the course this year is the same length as it was last year the resemblance about ends there. It is a very much different course as regards its surface. The amount of oil that has been spilled almost is unbelievable and none of it has gone to waste either. It all has been carefully rolled in and patted down and every inch of the surface has been gone over with a fine-tooth comb. The result is that it almost is as smooth as the proverbial billiard table only it is infinitely superior for automobile racing. The turns as well have been given an enormous amount of attention; they have been widened and banked



TWO OF THE PICTURESQUE STRAIGHTAWAYS ON THE SAVANNAH COURSE

and fence posts and other things that showed a tendency toward undue prominence have been uprooted. And the State of Georgia provided the zebra-striped convicts that performed much of the work.

In view of all this preparation it was to be expected that the course would be considerably faster than it was last year when Bruce-Brown romped around 24 times in a little over 353 minutes for the 415 miles and carried off the Grand Prize. That it is faster has been proven time and again by the speed which some of the drivers have made in practice. Practically all of them now are on the course, and some of them are credited with really phenomenal time. De Palma, with the big 90-horsepower specially imported Mercedes with which he will try for the Grand Prize has been unofficially clocked for a lap at a rate of better than 75 miles an hour; Eddie Hearne, who several times has driven a Benz home to victory in past long distance races, scooted around at just under this figure.

Though the Grand Prize race is supposed to be an international affair there are really only two foreign teams entered to give it an international flavor. Louis Wagner and Victor Hemery—both Frenchmen, and both drivers worthy of the foils of the best there is in America—are the two foreigners

who will drive. Wagner will have the mount on a Fiat and Hemery will drive a Benz. Their teammates, Bruce-Brown and Bragg (Fiat) and Bergdoll and Hearne (Benz) are not unknown, of course, for all four of them have been much in the lime-light before. Of the other American drivers who are expected to give the contingent of foreign drivers and their American teammates a hard tussle Ralph Mulford, whose name is synonymous for Lozier, is perhaps the best known, though all the others, Disbrow (Pope-Hartford), Cobe and Basle (Buick) and Nikrent and Patschke (Marmion) have put up records that entitle them to respect.

The race itself will be for the same distance as last year—24 laps of the 17.3 miles circuit and the man to cross the line in the shortest elapsed time will be awarded the Grand Prize of the Automobile Club of Savannah—a gold cup valued at something like \$5,000—and 4,000 good American dollars, which, as the Britishers put it, is "better than a poke in the eye with a burnt stick." This race will be run on Thanksgiving Day, November 30th, and is a free-for-all.

For the Vanderbilt cup race, no less classy a field of starters will line up, and it is confidently expected by those in the

know that the time made will be every bit as fast. Little comparison can be made, however, for the reason that the Vanderbilt is considerably shorter than the Grand Prize. Vanderbilt contestants must make 17 trips around the course, the total distance being a little over 314 miles. Monday afternoon, 27th inst., has been set as the date, and the race will be run after the two light car events have been gotten out of the way. The prize, of course, is the William K. Vanderbilt, Jr., cup and \$2,000 added. Non-stock cars of from 301 to 450 inches displacement only are eligible.

The Tiedeman trophy road race and that for the Savannah Challenge trophy will be run concurrently on the morning of the 27th, the start being scheduled for very soon after daylight. For the former event the distance is 173 miles, or 10 times around the course, the winner taking away the Tiedeman trophy and \$1,000 in cash. This race is for cars in the 161-230 inch class and also is a non-stock event. Thirteen times around the circuit, or 224 miles is the scheduled distance for the Savannah trophy race which is open to non-stock cars of from 231 to 300 cubic inches piston displacement. In addition to the Savannah Challenge trophy, the winner will receive \$1,000.



WELL BANKED AND GREATLY WIDENED TURNS ON THE SAVANNAH COURSE

GRAFT IN CHAUFFEURS' LICENSES

New York Authorities Discover and Disturb the Practice—How Some "Examinations" Were Conducted.

Because it has been definitely proven that in connection with the Board of Examiners of the State Automobile Bureau in New York City a system of grafting on prospective chauffeurs existed, the board has been reorganized. Of course it has been known for some time that examinations were not as rigid as they originally were and that provided an applicant had a little pull or was introduced by a friend of somebody's friend, he had little difficulty in obtaining the coveted license. But this is the first time that the matter really has been sifted, though the sifting process did not get right down to the very bottom of affairs.

For some time past it has been rumored that some form of emolument was demanded in consideration of the granting of licenses, and as the rumors had steadily increased in strength Secretary of State Lazansky inaugurated an investigation. For this purpose, the services of a private detective were requisitioned, and he was instructed to comport himself like a real applicant and obtain evidence. This he did almost on the first day when he was approached by an affable stranger with the proposition that for the small sum of \$20 the license would be forthcoming within one week.

That was the last the applicant every heard of the stranger, though the license was issued in due course and after he had answered the usual questions just about as he pleased, and with the slight regard for the correctness of his responses. Whether there was any connection between the affable stranger and the members of the Board of Examiners was not proven as Secretary Lazansky preferred to drop the whole matter where it stood and reorganize the board "for the good of the service." Consequently, two of the examiners, Herbert H. Patterson and Charles Reich, were summarily dismissed despite the fact that they held Civil Service positions, and as they offered no protest, the secretary evidently acted on sufficient evidence.

Later, in discussing the matter the secretary stated that he had no doubt but that there really existed a connection between the person who approached the detective and the Board of Examiners, but that he was concerned only with the action of the board in issuing a license to an applicant, evidently green, in so short a time.

Although the cases have nothing to do with the matter involved, at least two similar instances are known. In one case an applicant who had been introduced to

the Board of Examiners by the manager of a garage in demonstrating his ability to manage an automobile was merely required to turn the car in the street while the examiner observed the process from his office window. Comparing the questions of another man to whom a license was issued revealed the fact that not more than two of them were correct and yet he had no difficulty in getting his papers, for, as he explained, "I slipped something to one of the boys, and besides I had a letter of introduction from a mutual acquaintance."

State Association Plans Rousing Meeting.

If the plans of the New York State Automobile Association are carried out its annual meeting, which is to be held in Albany, December 2nd, will prove of uncommon interest. Among the several matters which will be discussed will be the proposition to bond the State for an additional \$50,000,000 to complete New York's system of highways; the need for Federal aid in the construction of highways; the compelling of all vehicles using the highways to carry lights at night; and the illumination of road signs after dark.

Governors Dix of New York, Wilson of New Jersey and Foss of Massachusetts are expected to make addresses. Others invited to speak are: Harold Parker, former chairman of the Massachusetts Highway Commission; Edward Lazansky, Secretary of New York; John A. Bense, New York State engineer; Charles A. Treman, superintendent of public works; W. H. Hotchkiss, state superintendent of insurance and former president of the A. A. A.; C. Gordon Roel, State superintendent of highways; Frank N. Godfrey, master of the New York State Grange; William Pierrepont White, Utica, N. Y., and Albert S. Callan, Albany, N. Y., who is the author of the Callan automobile law.

Accidents Mark Practice at Savannah.

Though the actual races on the Grand Prize course at Savannah have been singularly free from accidents, practice work this year already has claimed one victim, as it did last year. Driving a Case car in the first day of practice, Jay McNay collided with a farm wagon and was instantly killed. The car was completely wrecked but McNay's mechanic escaped with serious but not fatal injuries. Subsequently, Joe Dawson, riding in the mechanic's seat with Nikrent at the wheel of one of the Marmons, was thrown out and painfully bruised when a quick swerve was necessary to avoid collision with another farm wagon. His injuries will keep Dawson out of the contests. Knipper who had been following Nikrent stopped his Mercer at the scene of the accident and almost immediately was run into by Barnes at the wheel of another Mercer. Both of the Mercers were badly damaged, though not too badly to keep them out of the races. The drivers and mechanics escaped unhurt.

TRICKS OF THE INSURANCE TRADE

How Automobile Owners Are Made Party to Brokers' "Graft"—Hazards That Are Affecting the Business.

Although it is not generally known among automobile owners, the growth of casualty insurance of automobiles gradually is working a great change in the system of casualty and accident insurance in general. Alleged sharp practices on the part of a number of the more unscrupulous brokers are largely responsible for this change, and usually the automobile owner himself is made an accessory to these sharp practices, with or without his knowledge and consent.

When the motor car first made its bid for popularity—something like twelve years ago—general liability and accident insurance was being written by about twenty financially sound companies, along established lines of risk and based on voluminous statistics of accidents of all kinds. With the advent of the motor car these same statistics were resorted to in order to fix the premiums best suited to the new style of insurance, but as the number of accidents increased, the number of companies seeking such insurance increased, and the heavy damages given by juries and judges in cases of accident, the prevalence of "joy-riding" with its usual trail of broken heads and broken cars, played such havoc with the surplus of the casualty companies that they found themselves compelled to take immediate measures to safeguard bankruptcy. Instead of placing in their surplus funds the former fixed sum of \$29 for every accident occurring to one of their policy holders, from which to make good anticipated claims, and a sum of \$450 for every suit brought against the company by such a policy holder, the sixty-odd underwriting companies found it necessary to put aside \$60 and \$1,000, respectively, and even then found themselves working on a small margin of safety.

In addition to the extraordinary growth of the automobile insurance business itself, and the short time which the companies have had in which to adjust their rates to anything like a proper proportion based on the percentage of their risk, well informed insurance men report that there has arisen a new factor, which makes the writing of insurance policies more a gamble than heretofore. This is the sharp practice of some brokers, in getting insurance for fourteen, sixteen and even twenty-four months on an automobile, while paying a premium for but one year. In this practice the owner is made an accessory—sometimes with, and sometimes without, his knowledge.

Supposing the owner desires to have his car insured and goes to a broker. The lat-

ter will take out the necessary policy, on which the annual premium is \$150, but he will not send his check to the company until from 40 to 70 days later. If, for instance, the policy is dated November 1, 1910, the broker will not be called upon to send the premium to the company until January 10, 1911. Before the latter date, however, the unscrupulous broker will go to the insured and will tell him that he thinks the Lifesaver company is much better than the one in which he first took out the policy, and will advise him to transfer his policy to the Lifesaver company. In order to make his client the more willing, the broker will offer a rebate on the new policy-premium. The client agrees. The broker then takes the old policy on which he never paid any premium at all, and returns it to the issuing company with the stamped or penciled remark, "Not wanted." That is the end of that policy, and the loser, of course, is the insurance company, which carried the risk on the automobile for upwards of two months without getting a cent of premium for it. Some of the brokers have been known to repeat this same trick several times in succession, and thereby obtain a whole year's insurance for nothing. The owner of the car may share in the "graft," or he may be an innocent tool in the hands of the broker—the insurance company, however, is the loser in each case.

Against this practice the insurance companies confess themselves practically helpless. They may set their whole legal staff in motion, write letters to the insured and threaten him with court proceedings, but they rarely will press the suit as the individual sums involved are not large enough to "make a fuss over," but large enough to cut big holes into the company's profits at the end of the year, when added together.

The splitting of commissions with the broker—a practice now forbidden by the New York law—is another problem which has taken on greater proportions since the advent of automobile casualty insurance. As a result, premiums to the insured are unnecessarily high; for the company has to give big commissions to the broker—usually 25 per cent.—which commission the latter splits with some of his customers. The companies are compelled to charge high premiums, in order to come out even, and the matter has become so acute as to cause the New York State Superintendent of Insurance to issue a general statement in which he advocates the reduction of commissions to the brokers—thereby diminishing their eagerness to split these commissions—and the reduction of premiums to the insured.

Only recently the officials of the bigger companies met and agreed to cut down brokers' commissions to 7½ per cent., but so strong is competition in this line of business that one of the parties to the agreement immediately broke it, and the others had to follow suit in order to pro-

tect themselves. A prominent official of one of the largest companies writing this kind of business stated to a representative of the Motor World, that if a general law went into effect making the premiums and commissions in each company identical, practically all the weaker companies would be forced to the wall; for with the same premium and no chance for "split" commissions the owner would be foolish indeed if he did not insure his car in the largest and financially strongest company possible. As it is, he expressed the opinion that as the risks are so great and the competition so keen, not very many of the smaller companies will be able to much longer weather the storm. He added that perhaps when motorists understand that the new New York law affecting rebates makes both parties to the transaction culpable and liable to legal prosecution, the practice of "splitting the commission" may become less general; that hope is one of the few reliefs that seem to offer.

Wishart's Appeal Not Sustained.

Spencer E. Wishart, Jr.'s appeal to the Contest Board of the A. A. A. against his disqualification in Philadelphia's Fairmount Park road race, November 9th, has not been sustained. Although Wishart, driving a Mercedes, finished first in the 451-600 inches displacement class, the referee awarded the race to Ralph Mulford, who steered a Lozier, because Wishart dropped his mechanic and was unaccompanied for a part of a lap. This action of the board gives the \$1,000 prize, which has been held by the Quaker City Motor Club pending action, to Mulford.

Swan Will Head New Association.

Under the title of the Buckingham County Automobile Association the motorists of that Iowa county have organized and will affiliate with the Iowa State Automobile Association. The officers are: President, R. G. Swan, Independence; vice-president, Dr. H. H. Hunt, Hazleton; secretary, J. H. Wright, Independence; treasurer, D. F. Logan, Independence; governors, John Hekle, Quasqueton; H. C. Unbehaun, Winthrop; Joseph Stary, Rowley; M. C. Young, Jessup; Thomas Hazelwood, Hazleton; G. J. Hill, Stanley; W. H. Raymond, Independence.

Two Drivers Are Refused Reinstatement.

There was no wobbling of the backbone of the A. A. A. Contest Board on Friday last, 17th inst., when two applications for reinstatement were considered. It was the first meeting to be presided over by William Schimpf, the new chairman, and demonstrated that he holds small sympathy for violators of the rules. George H. Clark, driver of Cutting cars, who was disqualified and suspended December 20, 1910, for two years, to January 1, 1913, for driving at one of Barney Oldfield's outlaw race-meets at Ascot Park, Los Angeles, Cal.,

under the name of E. Z. Martin, for the second time applied for and was refused reinstatement. On the 3rd inst. the disqualification was temporarily lifted, pending an appeal, but on reviewing his case the board declined to extend further leniency because Clark not only participated in an unsanctioned race but drove under a name other than his own. The board also refused to reinstate H. D. Fisher, who was disqualified for incompetent driving at Brighton Beach, N. Y., July 3, 1911. Frank P. Fox, of Indianapolis, Ind., was suspended until October 10, 1912, for taking part in an unsanctioned hill climb at Bedford, Ind. He admitted that he had knowingly participated in the event on October 10, last. The report that Barney Oldfield had applied for reinstatement, which was printed in several papers, is wholly untrue. Oldfield undoubtedly knows what the answer would be to such an application.

Illinois to Examine the Chauffeurs.

As in New York and some other States, chauffeurs in Illinois will have to pass a more or less rigid examination before securing a driver's license for 1912. In order to facilitate the work of the examiners, Secretary of State Rose has announced that the examinations will begin December 4th, at offices opened for that purpose in the Heisen Building, 610 South Dearborn street, Chicago, where Douglas L. McKenney, chief chauffeur examiner, will be in charge. The fee for the original license, good for one year, is \$5. Renewals will cost \$3.

Team Prize for French Grand Prix.

Further details in connection with next year's French Grand Prix have been announced. The race, as told in last week's Motor World, will be a two-day event and the entry fees have been fixed at \$300 for one, \$550 for two, \$750 for three and \$900 for four cars. Besides the big prize of some \$4,000 to the builder of the winning car, a prize of \$2,000 will be given to the manufacturer making the best team performance with a minimum of three cars.

Race Promoter Punished; Drivers Escape.

Edson Card, Jr., has been indefinitely suspended by the American Automobile Association for conducting the unsanctioned racemeet on Election day, 7th inst., at White Plains, N. Y. Unusual clemency was exercised by the Contest Board to the drivers who participated, none of whom were suspended, as the board was convinced that they were under the belief that the meet had been sanctioned.

Nebraska Motorists Elect Officers.

The Cumming County Automobile Association is the name of a new organization formed at West Point, Neb. The officers are: President, O. C. Anderson; vice-presidents, C. C. Stahl, A. F. Loewe, F. F. Wortman, W. W. Troxwell; secretary-treasurer, W. T. Fried.

Cooling Systems; Their Pros and Their Cons

To maintain the cylinders of an automobile engine at the proper temperature for the most efficient operation there are only two systems available. One of them is by means of air, which is drawn in by a fan and forced to circulate around the cylinders, heat radiation and dissemination being assisted by forming the cylinders with flanges or fins. The other is by means of water and is by far the more popular of the two systems.

Water circulation systems are further di-

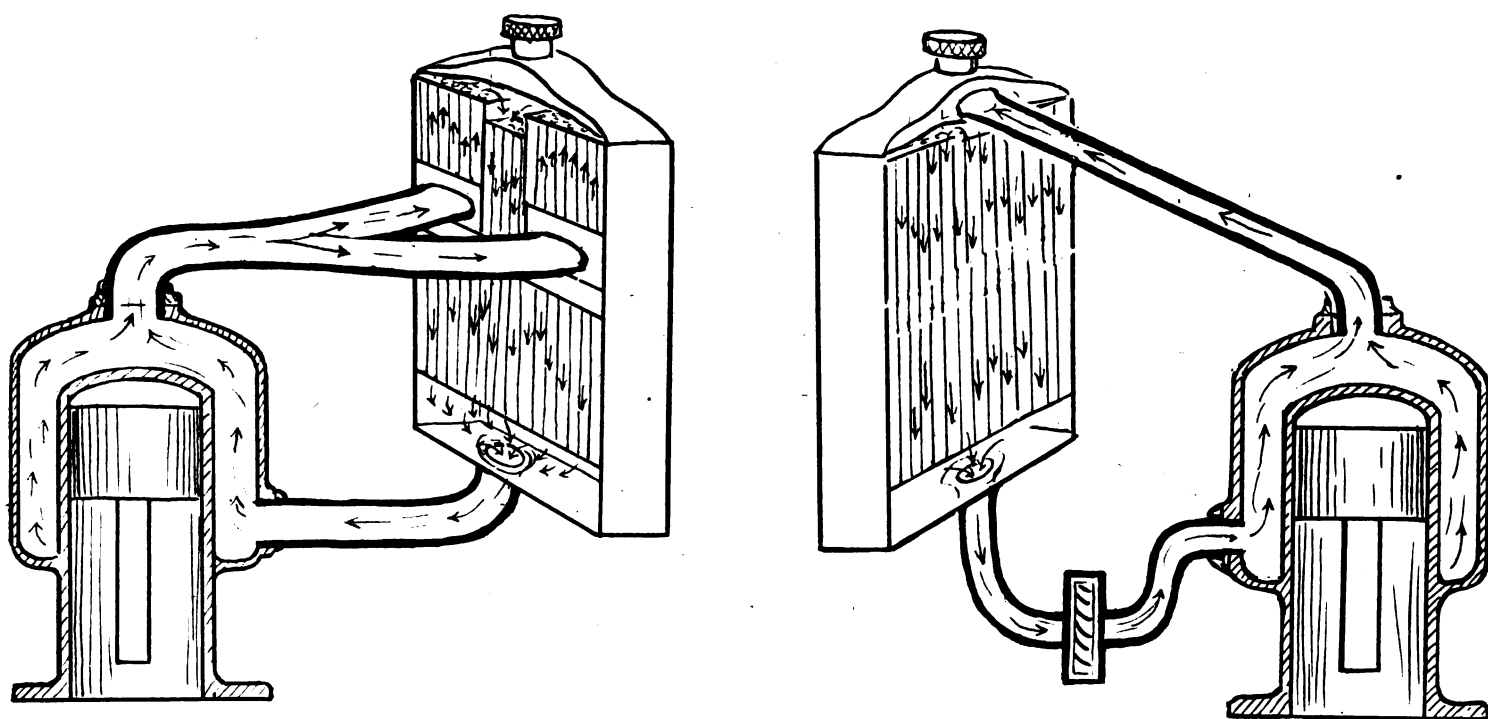
vided into two classes, viz., pump, or mechanical circulation, and thermo-siphon, or physical circulation. Of these two classes, the pump system in one of its various forms is used most, though the thermo-siphon system steadily is increasing in favor and bids fair soon to equal the pump system in number of applications. Neither are new or novel, but, strange to say, many of those who use motor cars and not a few of those who sell them, have confused ideas of how the two systems actually operate.

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the engine is running. A glance at the accompanying illustrations will suffice to show the cardinal differences between the two systems, Fig. 1 depicting the thermo-siphon arrangement and Fig. 2 the pump system.

In the pictures it may be noticed that the piping in the thermo-siphon system is considerably larger in cross section than that in the other system, and this is accounted for in a simple way. As the thermo-siphon system depends on no outside mechanical



FIGS. 1 AND 2—SHOWING PRINCIPLES OF THE THERMO-SIPHON AND PUMP COOLING SYSTEMS

vided into two classes, viz., pump, or mechanical circulation, and thermo-siphon, or physical circulation. Of these two classes, the pump system in one of its various forms is used most, though the thermo-siphon system steadily is increasing in favor and bids fair soon to equal the pump system in number of applications. Neither are new or novel, but, strange to say, many of those who use motor cars and not a few of those who sell them, have confused ideas of how the two systems actually operate.

The thermo-siphon takes part of its name from the Greek word *therme*, which means heat. Regarding the rest of the name little explanation is necessary, inasmuch as siphons are fairly common in other applications and have been used literally for thousands of years. As a matter of fact, evidences of their use among the Egyptians as early as 1450 years before Christ have been unearthed. Without going deeply in-

to the matter, it might be said that a siphon is a U-shaped tube, one leg of which is longer than the other. When the tube is placed inverted, with its shorter leg in a vessel of liquid and the rest of the tube filled with the liquid by suction or otherwise, the weight of the liquid in the longer leg will, provided its end is lower than the level of the liquid in the vessel, create a flow through the tube, and this will be kept up until the vessel has been emptied. This is the theory on which the thermo-

siphon water cooling system operates. The water is siphoned from the cylinders into the radiator, whence it flows back to the cylinders by gravity. But to set up the siphoning action heat is relied on, as no suction is available. As water is heated it expands and becomes lighter and rises. As it rises it is displaced by the cool water in the upper part of the radiator. The siphoning action thus set up continues as long as there is water in the radiator and water jackets and it is heated. It is a simple physical law and the water is circulated by natural means.

In the pump system, on the other hand, the water is circulated by mechanical means. In the water line is inserted a pump of the centrifugal, or gear, or paddle type, and by this means the water is pumped from the water jackets to the radiator and then back to the water jackets. The water is kept in constant circulation as long as

aid to insure the circulation of the water but relies on gravity alone, the rate of flow of the water is slower than it would be if it were pumped. Therefore, in order to circulate a given body of water within a certain time it is necessary to employ larger pipes than would be required if the water flowed more rapidly.

Another reason for the use of larger pipes is that a freer flow of water is insured. For the same reason, it is essential that for thermo-siphon cooling the pipes be as straight as possible, for every bend that is introduced offers resistance to the flow of the water and reduces the efficiency of the system. In this respect it is well to remember that an existing pump system seldom if ever can be made over into a thermo-siphon system merely by the elimination of the pump.

A number of years ago, when the thermo-siphon cooling system first began to attract

attention, not a few manufacturers enthused over it, and without thorough investigation of the conditions necessary, immediately adopted it, using the same piping and general arrangement as they previously had used in their pump systems. Needless to say, the result was failure in each of the several cases. Since then, however, designers have come to appreciate the amount of attention that must be given the production of a successful thermo-siphon system, the result being apparent in the steadily increasing number of installations of this kind which are being made.

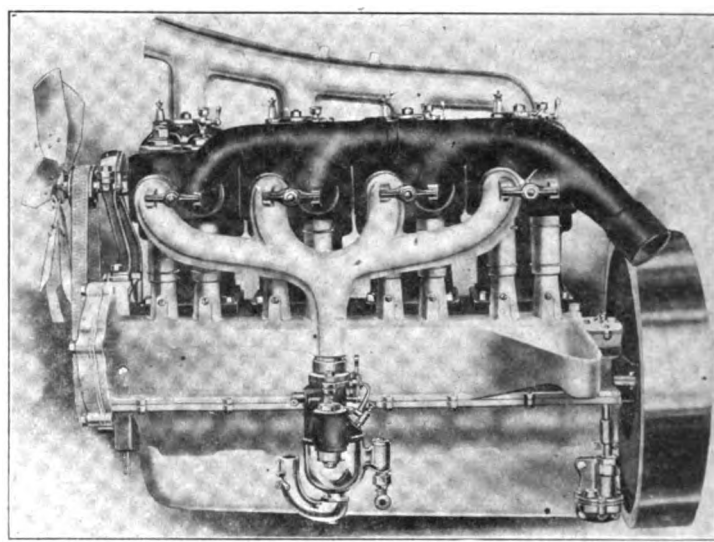
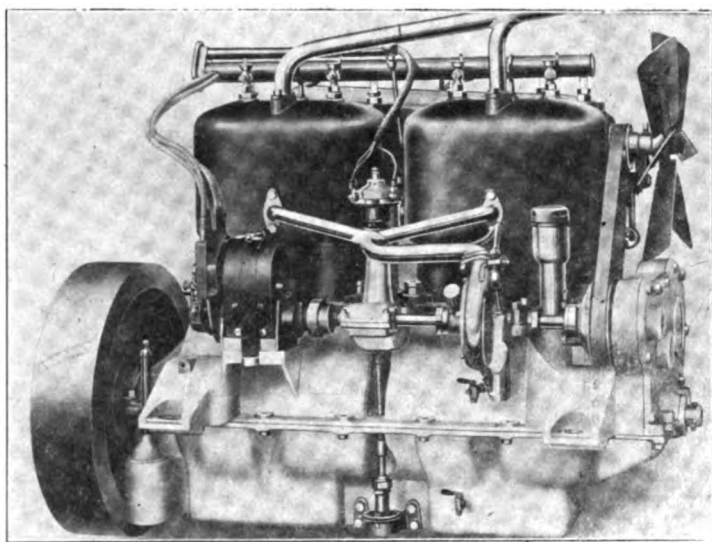
In Figs. 3 and 4, the difference in the size of pipes which is necessary is shown more clearly. In Fig. 4 the Overland engine is shown, and as thermo-siphon cooling is used, it may be seen that the piping is considerably larger than that used on the

tially a heat engine, and by the use of thermo-siphon cooling the temperature of the cooling water is governed to a large extent by the heat of the engine itself. Which is to say that the hotter the engine gets, the faster the water circulates and cools. Thus, when the engine is laboring with full throttle and retarded spark—the condition under which the greatest heat is generated—the water actually circulates more rapidly with the thermo-siphon system than it does with the pump system, in which the flow of the water is governed by the speed of the engine.

Similarly, when an engine cooled by the thermo-siphon system is stopped the water continues to circulate until it becomes too cool to rise and set up the siphoning action. When an engine equipped with a pump system, on the other hand, the circu-

engine. When the car is run over level loads with fully advanced spark and little throttle opening the engine does not create as much heat as when it is driven "wide open," and consequently the water circulation is slower. With an increase in heat the rate of flow of the water increases automatically.

On the other hand, the pump system has the indisputable advantage that it is positive in action. Often on long tours it is not possible to obtain other than very dirty water for the cooling system. With pump circulation there is little chance for sediment to collect in the small radiator passages and clog them, for the reason that the water always is under slight pressure. Air and steam locks also are impossible for the same reason. Though such troubles seldom are heard of with well designed



FIGS. 3 AND 4—SELDEN PUMP AND OVERLAND THERMO CIRCULATION ILLUSTRATIVE OF DIFFERENT SIZED PIPING

Selden engine shown in Fig. 3, in which the pump system of water circulation is used.

Though at first glance it might appear that the thermo-siphon system is far superior to the pump system by reason of the fewer number of parts and the consequent simplicity, each has advantages and disadvantages. It always is possible to use the pump system on any engine, but the thermo-siphon system cannot always be applied. This is because engine and radiator locations are not always such that the system will operate.

The manufacturer's first cost in the production of any piece of machinery always requires careful consideration. For this reason, the first objection to the thermo-siphon system, if it may be so styled, is that a larger radiator, pipes and connections are required. But this is offset by the elimination of the pump, and in view of the other advantages of the system and the fact that after installation it requires no further attention, the objection scarcely is serious.

Actually, the thermo-siphon system is considered to be the more efficient of the two, for the reason that the motor is essen-

tially a heat engine, and by the use of thermo-siphon cooling the temperature of the cooling water is governed to a large extent by the heat of the engine itself. Which is to say that the hotter the engine gets, the faster the water circulates and cools. Thus, when the engine is laboring with full throttle and retarded spark—the condition under which the greatest heat is generated—the water actually circulates more rapidly with the thermo-siphon system than it does with the pump system, in which the flow of the water is governed by the speed of the engine.

Another of the points which it is necessary to remember when regarding the internal combustion motor as a heat engine, is that immediately a cold engine arranged for pump circulation of water is started, cold water is pumped into the cylinder water jackets. Since it requires that quite a number of explosions must take place before the engine has become warmed up sufficiently to operate at its rated power, it follows that the pump system is deficient in this respect, for in reality the circulation of the water should not start until the temperature of the engine has reached a certain point.

With the thermo-siphon cooling system, the water does not commence to circulate until it has been heated enough to cause it to rise and set up the siphoning action. Thereafter, the rate of flow of the water is in direct proportion to the speed of the

thermo-siphon systems, there still is a chance of their occurrence, no matter how small it may be.

Thus both systems have certain minor drawbacks, and in an endeavor to produce a system which shall be ideal under all conditions, several manufacturers have combined the two and obtained the advantages of both. This is achieved by using slightly larger pipes than are ordinarily required for the pump system and making the pump casing considerably larger than the rotating member of the pump. The result is that under normal conditions, the pump circulates the water in a manner common to all pump systems. When the temperature of the water reaches a certain point, however, a thermo-siphon action is set up as well, and because the pump housing is large the water flows past the pump blades and circulates faster than it would under the influence of the pump alone. Incidentally, the water continues to circulate after the motor has stopped, and the benefits of both systems thus are realized.

One of the mythical disadvantages of the thermo-siphon system which has at various times been claimed, is that when a car

so equipped is driven up a steep hill the level of the radiator will be so altered with regard to that of the cylinders that the system will become inoperative. As a matter of fact, the hill would have to be very steep indeed if such a consequence was to be expected, and it is doubtful if traction could be obtained on a grade sufficient to stop the siphoning action.

Just how manufacturers view the different systems is evidenced by the fact that of a total of 176 of the more prominent, 58 per cent. prefer circulation by centrifugal pump, 12 per cent. utilize a gear pump, 25 per cent. use thermo-siphon and no pump, and six per cent. employ combination systems. Numerically, they stand 102 centrifugal pump, 41 thermo-siphon, 22 gear pump, and 11 combination.

That the thermo-siphon system of cooling has made remarkable gains in the past year brooks no dispute; there are very few cars in the light, low-powered class in which this system is not used and manufacturers of larger cars, as well, gradually are being converted to its use.

One of the most significant indications of its gain in popularity, however, is its growing use on commercial vehicles. The rigorous conditions under which such vehicles are run make it absolutely essential that the cooling system be of such design that overheating is impossible and in this respect it is doubtful if the thermo-siphon system can be surpassed unless it is by one which is a combination of thermal and gravity circulation.

A. A. A. Plans For Federal Aid Convention.

January 16 and 17 are the dates that have been decided on for the Federal Aid Good Roads Convention of the American Automobile Association, to be held in Washington, D. C., in conjunction with other co-operating bodies interested in modern highways construction and systematic maintenance. It was the consensus of opinion that January, after the holiday recess of Congress, would insure a larger and more representative attendance from the entire country. No less than 33 measures have been introduced in Congress during the past year, and every member who has thus indisputably placed himself on record will be invited by President Robert P. Hooper of the A. A. A. to enlarge upon the merits of his particular measure at the Washington gathering, which means that there will be a notable gathering in the Willard Hotel where the convention will be held. A recent conference in Atlanta, Ga., involving President Charles A. Barrett of the Farmers' Union and President Hooper, brought forth co-operation which will result in Mr. Barrett being one of the speakers, with another farmer advocate in the person of T. J. Brooks, of Atwood, Tenn., National legislative committeeman of the Farmers' Union, which is said to have some 2,000,000 members.

TENDENCIES OF THE FOREIGN TRADE

Show Statistics That Indicate the Growth of Small Car—Chain Drive and Other Things Affected.

"Show statistics" usually make dry reading, but they "speak a piece" that is not to be denied—they show more plainly than anything else the trends of the trade and therefore are full of instructive meaning. The statistics of the London show, just closed, are no exception to the rule, and compared with those of the last Paris show, they unmistakably point the way the British and Continental manufacturers have gone and are going.

These figures prove that European manufacturers have turned their attention more than ever to the production of light, medium power cars with accommodations for only two or three passengers—runabouts and roadsters, they would be called on this side of the pond—the result being that at the last Olympia show the number of "two and three seaters" exhibited was 30 per cent. greater than was the case last year. Though British and Continental motorists always have inclined to this class of vehicle, the great increase nevertheless is significant in that the prejudice against heavy, expensive cars is made plain. Reflecting in a measure the American practice of including in the purchase price many of the "extras" which at one time were considered merely in the light that their name implies, more cars than ever now are listed "with all on." This is perhaps most noticeable in the case of tops. Touring cars without tops took a decided slump in numbers, the loss being just about 50 per cent., whereas the number of cars equipped with detachable tops increased considerably.

Another of the certain indications is that the death knell of the method of final drive by side chains has been sounded. Although the table indicates that seven cars were equipped with chain drive, six of them employed friction transmission of power in conjunction with a single center chain; the seventh also employed a single center chain. Not one of them was of the regulation double side chain drive, which brings to mind the fact that at the 1904 Olympia show the proportion of cars driven by means of double side chains was approximately 66⅔ per cent. Literally, the system has died hard, for in 1906 the percentage of chain driven cars still was 33⅓, while three years ago 10 per cent. of the cars were chain driven. The table in full is as follows:

Classification	London 1911	London 1910	Paris 1910	Paris 1908
Cars without tops...	16	33	13	41
Cars with tops.....	207	190	137	123
Closed cars	147	168	200	154
Total (large cars)	370	391	350	318

Two and 3-seaters...	83	64	51	45
Racing cars	1	...	4	18
Three-wheelers ...	6	3	5	4
Total	460	458	410	385
Chassis, all kinds..	125	132	146	190
Total (pleasure cars and chassis)	585	590	556	575
Omnibuses, etc. ...	...	...	11	...
Commercial cars ..	...	...	38	...
Gross total	585	590	605	575
Means of Propulsion:				
Gasolene	580	579	598	566
Gasolene-electric ..	...	...	...	5
Electric .....	...	2	...	4
Steam	5	9	7	...
Grand totals	585	590	605	575
Methods of Driving:				
Shaft	569	572	533	456
Chain	7	12	59	106
Electricity .....	...	2	...	4
Friction	6	3	7	5
Belt .....	...	1	4	4
Gear wheels or direct drive	3	...	2	...
Grand totals	585	590	605	575
Countries of Origin:				
Great Britain	271	294	19	4
France	174	185	508	480
Germany	41	29	20	19
Italy	33	29	31	35
America	28	18	8	6
Belgium	20	25	9	18
Switzerland	9	7	6	11
Austria	6	3	...	2
Holland	3	...	...	...
Spain .....	...	...	4	...
Grand totals.....	585	590	605	575

American Cars Dominate Sydney Show.

The great popularity which American cars have attained in Australia never was more clearly proven than at the motor show which was held last month at Sydney, N. S. W. Of the eighty-nine different makes exhibited no less than twenty-six were of American manufacture, only Great Britain exceeding the American product in number. Apart from a number of commercial vehicles of British manufacture, which still are something of a novelty in the colony, it is stated that the cars listing at from \$750 to \$1,500 created the most attention. A census of the cars exhibited showed the origin of the eighty-nine different makes to be as follows: English, 33; American, 26; French, 16; German, 6; Italian, 4; Belgian, 4.

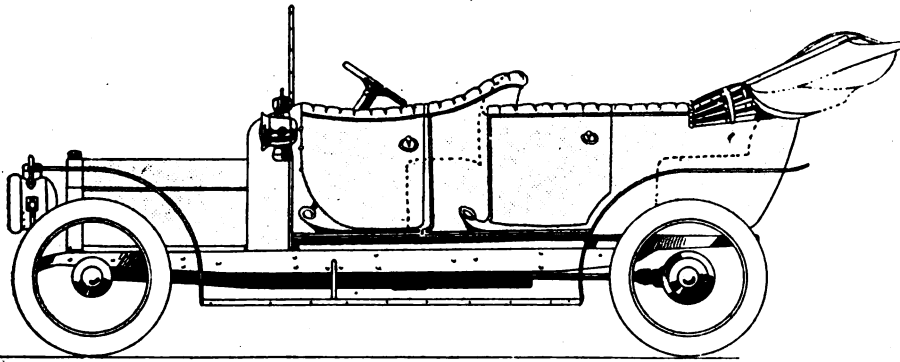
Taxicab Follows Dead Driver's Hearse.

Pathos and sentiment permeated the funeral of a London taxicab driver, who recently lost his life in a street accident. Following the ancient custom of leading a dead officer's or king's horse behind the hearse to the grave of its late master, the unlucky driver's taxicab followed the hearse without passengers and with its "For Hire" flag turned to the non-recording position. The pathetic incident caused much comment in the world's largest and busiest city, whose people rarely have time to indulge in sentimentality.

THE PROPERLY PROPORTIONED CAR

British Critic Undertakes to Specify the Fine Points of Such a Model—What They Are.

Just what constitutes a well designed car long has been a much mooted question and one which has elicited all manner of opinions. Manifestly, beauty of outline is a feature which cannot be overlooked but it is not everything. There must be incorporated provision for the comfort of passengers as well as a close following of



BRITISH CONCEPTION OF A POORLY DESIGNED CAR

those points of accepted design which make for efficient operation. It is how best to reconcile these various points and to produce a car that shall satisfy all that has been one of the really great problems which only continual study and experimentation has solved.

Comparisons designed to illustrate the point may be odious, but that they also may be instructive is not to be gainsaid, which fact adds real interest to the two pictures which are reproduced herewith. One of them shows the British conception of a well-designed car, and it might be said in passing that John Bull's ideas in this respect differ but slightly from those of his American cousins. The other, which it is explained "has not been exaggerated, but which, it will be admitted, is considerably less eyeable than the other," represents very nearly everything that is wrong in designing, according to the Autocar, which is responsible for the comparison of the two.

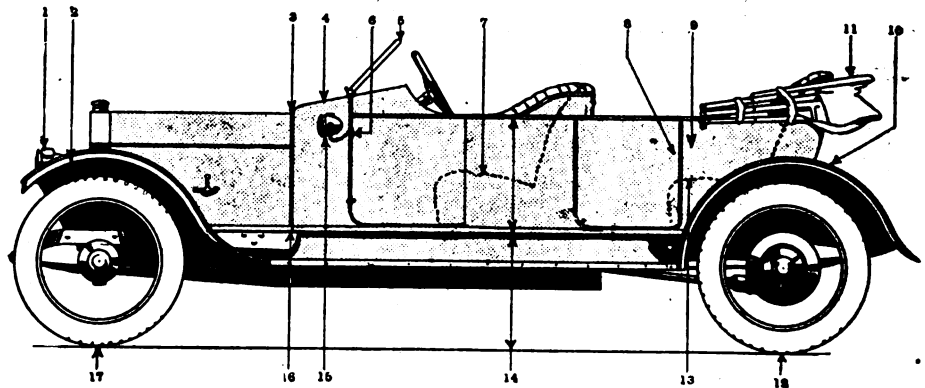
In calling attention to the first illustration, which is designed to inculcate into the minds of the uninitiated the principal points which make for good appearance, it is explained that the various points enumerated need not be adhered to rigidly, slight variations bearing but little on the appearance or the operative efficiency of the whole.

"For instance," states the Autocar, "lamp makers are not agreed as to the best height for the headlights, but they need not be too far forward. The seat heights, again, will vary according to the build of the owner, but the height of the body could not

in all cases be exactly the same height as the chassis. There are several points, however, which should not be departed from to a greater extent than is absolutely necessary—overhang, for instance, and the height of the screen (which is the British name for windshield).

"One point which is too often forgotten is that if a really wide back seat, wide enough for three wide people, is insisted on, it is impossible to combine comfort with elegance of outline. If the seat is very wide it must be high above the floor to clear the wheels, as it will overhang them considerably, then the floor must be raised and the back and sides must be

raised, too, if adequate support and protection are desired. Another point is the query, Why should doors be provided with bolsters on the tops? No one sits on them."



BRITISH CONCEPTION OF A WELL PROPORTIONED CAR

1. Headlights not too prominent. 2. No unnecessary space between wheel and wing. 3. Bonnet line and body line coincident. 4. Scuttle merged into body line. 5. Height of screen just below driver's eyes. 6. Doors hung on forward hinges. 7. Seats not more than 14 inches high sloped backward. 8. Inside door latches. 9. Longest body panel not longer than bonnet. 10. Clearance between wing and wheel only sufficient for spring play. 11. Flat neat hood. 12. Center line of back axle and back of car approximately coincident. 13. Back seats same height as front seats. 14. Height of frame from ground and height of body approximately equal. 15. Small unobtrusive side lamps. 16. Bonnet board and body line coincident. No visible filling strip between chassis and body. 17. Front axle center and radiator approximately coincident.

Regarding the illustration depicting poor design, the Autocar remarks that "the radiator overhang dominates the front of the car too much; there is a sharp rise up the dash to the scuttle, and the screen is unnecessarily high. The door and body panels are ill-shaped and do not match and the back panel is considerably longer than the bonnet. There is considerable overhang at the back, too, and the hood (or top) lies badly. The seats are old and uncom-

fortable and there is an ugly filling strip between the body and the frame."

Taxicab Chauffeur Not a "Workingman."

Following closely upon a decision that the British chauffeur is not a servant, another British court has decided that a taxicab driver cannot be considered a workingman either, because he works on a percentage basis. A chauffeur named Taylor sued the British Motor Cab Co., Ltd., for injuries received while cranking the motor preparatory to starting on his daily trip. The court held that, although the plaintiff was bound to drive the respondents' cab for twelve months, the relations between a taxicab driver and a proprietor of the cab were not those of master and servant, and that therefore the plaintiff was not entitled to damages under the provisions of the Workmen's Compensation Act.

French Club Organizes "Mudguard Trials."

Following the example of a Belgian organization, the Automobile Club de Seine-et-Oise, of Versailles, France, is organizing a competition of devices intended to be fitted to motor cars with the object of preventing them from splashing mud in bad weather on the clothes of pedestrians. The contest will be held on February 5th next, at Versailles. The Belgian authorities recently passed a law compelling all automobiles to carry such mud shields in bad weather, and it is stated that France intends to take similar measures. It is in

connection with this proposed law that the big French club is arranging the contest.

Sealing Wax for Short Circuits.

To prevent short circuits in ignition wiring, there are those who advise that the wires be painted with a solution composed of ordinary red sealing wax dissolved in gasoline. The addition of a little linseed oil or melted paraffine will make the improvised varnish less brittle.

DOUBLE SPARKS FOR GARFORD "SIX"

One of Several Distinctive Features of Veteran Maker's Newest Production—Wide Range of Body Styles.

Signalizing the entry of another of America's oldest and foremost manufacturers into the ranks of the six-cylinder exponents, the Garford Co., of Elyria, Ohio, formally has announced its promised six-cylinder, 50-horsepower model, which, with another new model, styled a "Four-Thirty," and having, as its name implies, four cylinders of 30 horsepower, and the well known "Four-Forty" will constitute the Garford line for 1912.

The presentation of the "six" was not made without mature deliberation. For

cylinder motor, the question of the equal distribution of the gases has been carefully worked out, the shape and disposal of the intake manifold being such that this difficulty has been eliminated. The carburettor is of special Garford design and incorporates a venturi tube with air adjustment manually controlled, from the dash.

Ignition is effected by means of a Bosch high tension magneto dual system, though it differs from the usual dual system in that two sets of plugs are used and operated at the same time from the magneto. In this respect the Garford Co. is among the first to adopt the double spark system as stock equipment. The benefits of two sparks instead of one long have been realized and the application is common in racing circles, though up to the present time there have been few installations of the kind on bona fide touring cars. In the Garford arrangement, either set of plugs

quarter platform, the side members being arranged to take the drive. Torque reaction is absorbed in the orthodox way by means of a spring hung torsion rod. Thirty-six by four and one-half inch tires are used in the front and those in the rear are 37 x 5; the distance between wheel centers is 135 inches. Both sets of brakes are located on the rear wheels, the service brakes being internal expanding and the emergency brakes external contracting.

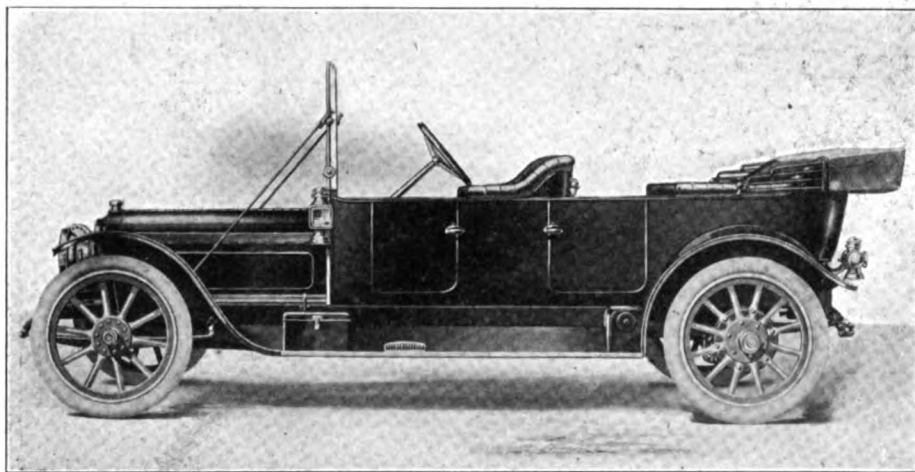
In all, six body styles are supplied on the six-cylinder chassis. With four-, six- and seven-passenger touring bodies the list price, including such items of equipment as Prest-O-Lite tank, combination oil and electric side and tail lamps, horn, tire carriers, top, speedometer, windshield, jack and set of tools, is \$4,500. For the limousine and landaulet the price is \$5,600 and \$5,750, respectively, with similar equipment.

The four-cylinder 30-horsepower model is to all intents and purposes a smaller edition of the "six," and in it are incorporated many of the features of the larger car. The cylinders are cast in a single block with the valves all on one side, and the bore and stroke are the same as in the six, namely, $4\frac{1}{4}$ x $5\frac{1}{4}$. Except in the matter of ignition, which is effected by means of a standard Bosch dual system, the remainder of the specifications are the same as apply to the "six," parts of course being made slightly lighter in conformity with the smaller car. The change gear mechanism affords four speeds ahead with direct drive on third speed. The wheelbase is 118 inches, and tires are 34 x 4.

In touring car style, with accommodations for either four or five passengers, the car costs \$3,200, standard equipment being the same as is supplied with the 50-horsepower model. Four thousand dollars and \$4,100, respectively, are asked for the town car limousine and the landaulet.

For the coming season, the production of the original Garford "Four-Forty" will be continued with but very slight changes—changes which scarcely are noticeable and which do not in any way affect the standard design, which has created for itself a reputation for reliability and efficiency. Cylinders are cast in pairs and measure $4\frac{3}{4}$ inches bore and $5\frac{1}{4}$ inches stroke. The wheelbase is 119 inches and the front tires measure 36 x 4 inches, those on the rear wheels being 36 x $4\frac{1}{2}$ inches. As in the case of the other two models, a four speed change gear mechanism is used in which the direct drive is the third speed. Otherwise, the same general specifications which apply to the two other chassis also apply to the "40."

An even greater assortment of body styles may be had on the 40-horsepower chassis than are supplied with either of the other two and embrace three-, four-, five-, six- and seven-passenger touring cars, for either of which the price is \$3,750, a limousine priced at \$4,800 and a landaulet at \$4,900.



THE NEW GARFORD "SIX-FIFTY"

three years the company has been engaged in experimental work on the car but it was held back until its right to bear the Garford name was abundantly proven. The smaller car, the four-cylinder, 30-horsepower model, has been designed for those who desire less car and less power but the same high standard of excellence.

In general lines and appointments, the six-cylinder model is quite similar to the older four-cylinder car. In detail, too, there is little variance from standard Garford practice, though it is but natural that the new car should embody a number of distinctive features. The motor is of the L-head type with the cylinders cast in sets of three and the valves enclosed by means of a light aluminum plate. In dimensioning the cylinders nothing radical has been attempted, the manufacturers preferring to cling to conventional design as giving the greatest all around satisfaction. To this end the stroke has been made but very little greater than the bore, these two measurements being $5\frac{1}{4}$ inches and $4\frac{1}{4}$ inches, respectively.

With due regard for one of the obstacles incident to the design of a successful six-

may be made inoperative by means of a switch on the dash. Allowing of a slight disalignment of the magneto without serious consequences, a Bosch spring coupling is used. The centrifugal circulating pump which forms part of the cooling system is driven from the magneto shaft.

To lubricate the motor, a combined splash and force-feed system is relied upon, a gear driven pump located in the crankcase being used for circulation. The connecting rod big ends are equipped with small scoops which dip into and splash the oil over the interior of the cylinders and the minor bearings.

A four speed selectively operated change mechanism is used, the third speed ahead being direct drive and the fourth speed an over-step. Power is transmitted to the full-floating rear axles by means of a shaft and a leather faced cone clutch with cork inserts. Three final drive gear ratios are supplied at the option of the purchaser or depending on the locality in which the car is to be used; they are 3.4:1, 3.78:1 and 3.18:1.

The front springs are of the semi-elliptic variety and those in the rear are three-

HOW THE ALCOS HAVE BEEN REFINED

**Few Mechanical Changes but Several New Provisions for Users' Comfort—
"Sixes" and "Fours" Continued.**

As has been the case with so many other manufacturers, the American Locomotive Co., of Providence, R. I., has found little room for mechanical improvement in its Alco cars. Such refinements of detail as have been made pertain principally to the bodies which have been made roomier and handsomer and more luxurious than ever. Both the four-cylinder 40-horsepower model and the six-cylinder 60-horsepower

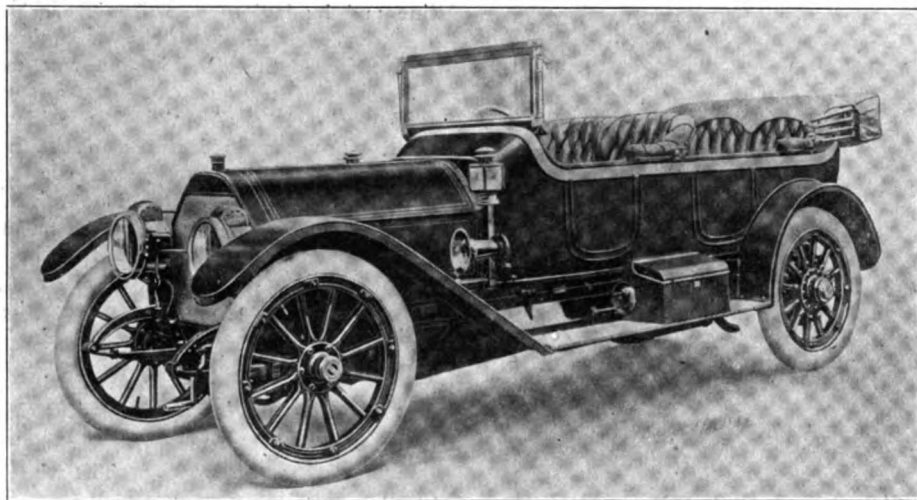
equipment to the six. Like the larger motor it is marked by a peculiar solidity of appearance, positive and thorough lubrication and efficient carburation.

The most notable of the minor changes which have been made in both motors has to do with the intake and exhaust manifolds. Intake manifolds have been increased in area to provide better gas distribution and to insure absolutely uniform operation of the motors under all conditions of throttle opening. The exhaust manifolds also have been increased in size and their shape altered slightly so that the exhaust gas issuing from one cylinder tends to form a partial vacuum which assists in drawing the burned gases from the next cylinder.

Though the same type of Alco multiple

keep them out after dark there is a clever arrangement by which a tiny incandescent light illuminates the step immediately the tonneau door is opened. Electric side and tail lights are provided, of course, and as a further indication of the thoroughness of the manufacturers, touring cars are equipped with cleverly hidden dome lights arranged in their tops. Limousine bodies are similarly equipped.

Seat lengths, depths and thickness all have been made over in proportions designed to eliminate every possible kind of



THE SIX-CYLINDER ALCO WITH TOURING BODY

model will be continued as heretofore and these together with the little 16-horsepower town car of which so many now are plying as taxicabs throughout the larger cities, will constitute the line.

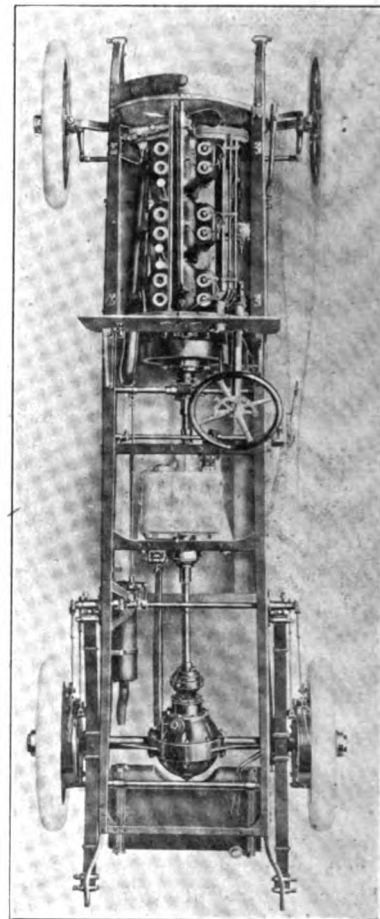
In the six-cylinder motor is revealed practically the same design which for the past four years has made a record for consistency and economy. Except for slight improvements which have been suggested from time to time, it is unchanged, the cylinders being of the T-head type and cast in pairs. The bore and stroke are $4\frac{3}{4}$ inches and $5\frac{1}{4}$ inches, respectively. For ignition, a Bosch high tension magneto is used, this forming the essential part of the regular Bosch dual system which operates through a single set of spark plugs. The lubrication and cooling systems are the same; oiling is made positive by means of a gear driven pump which feeds the oil under four pounds pressure through the crankshaft to all the main bearings and the timing gears. After having served its purpose, it is strained and the operation is repeated. The cooling water is circulated by means of a centrifugal pump.

Except for a difference in the size of the cylinders, which measure $5\frac{1}{4}$ inches bore and $5\frac{1}{4}$ inches stroke, the four-cylinder motor conforms in general design and

disk clutch is retained it has been refined in detail and its smoothness of action increased. The disks are alternately steel and bronze and the whole mechanism is so constructed that it may be removed intact without the necessity for disturbing any of the other parts. The change gear mechanism provides four speeds forward and reverse, direct drive being the highest gear ratio obtainable. Final drive is by means of a shaft and bevel gear differential; the ratio of engine revolutions to rear wheel revolutions on high gear is 2.59:1 for the 60-horsepower car and 3:1 for the four-cylinder model.

Tire sizes on both cars are the same, viz., 36 x 4 in the front and 36 x 5 in the rear. Similarly the spring arrangement is the same in both, semi-elliptic members being used both front and rear. Both sets of brakes are located on the rear wheels, the service brakes being external contracting and the emergency brakes internal expanding; the drums measure 15 inches in diameter and three inches in width.

It is in the design of the several types of bodies that the greatest amount of change has been made; they literally bristle with contrivances calculated to increase the comfort of passengers. Thus, for the convenience of those whose duties or pleasures



ALCO SIX-CYLINDER CHASSIS

fatigue. The backs in particular have been given unusual care in design and are so shaped that they support passengers in the easiest position; the angle of the seats has been changed and slightly lowered.

Externally, the bodies also have received their share of attention and have been smoothed down and given a truly artistic appearance that is in keeping with the quality of the cars. Gear shift and emergency brake levers have been moved inside the front doors, and door latches have been concealed. A new and distinguishing feature of the color scheme is a two-inch stripe around the top of the bodies, which literally may be termed a finishing touch. The equipment furnished with the several models is unusually complete, the cars being delivered, literally, "ready for the road."

TWELVE ENGINES IN BEAVER LINE

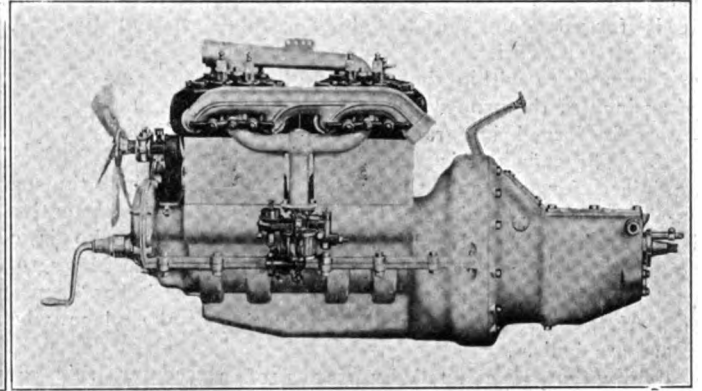
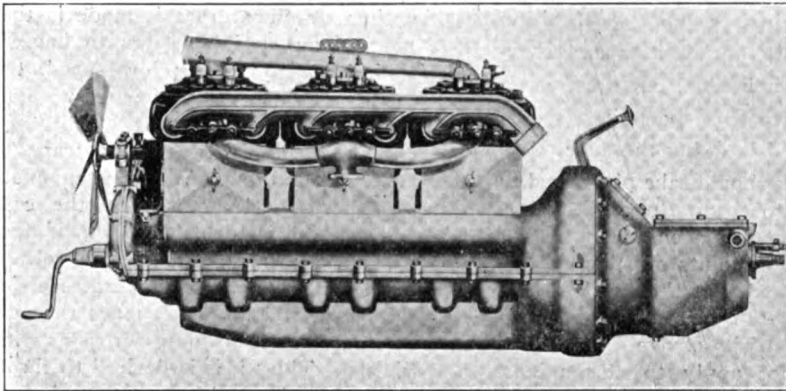
Milwaukee Motor Makers Extend Product to Meet All Requirements—Suited for Pleasure and Commercial Cars.

To those automobile manufacturers who prefer to equip their cars with motors of recognized merit from the factories of a company which specializes in the construction of motors alone, the Beaver Mfg. Co., of Milwaukee, Wis., offers selection from no less than 12 distinct types. The announcement of the Beaver products for

Horse-power	Cylinders	Bore	Stroke
15	2	4 $\frac{3}{8}$	4
18	2	4 $\frac{3}{8}$	4
20	2	5 $\frac{1}{8}$	4 $\frac{1}{2}$
28-30	4	3 $\frac{3}{4}$	5
28-30	4	3 $\frac{3}{8}$	5 (Unit)
40	4	4 $\frac{3}{8}$	4 $\frac{3}{4}$
45	4	4 $\frac{3}{8}$	5 $\frac{1}{4}$
50	4	4 $\frac{3}{8}$	5 $\frac{1}{4}$
40-45	6	3 $\frac{3}{4}$	5 (Unit)
45-50	6	4 $\frac{3}{8}$	4 $\frac{3}{4}$
45-50	6	4 $\frac{3}{8}$	5 $\frac{1}{4}$
50-60	6	4 $\frac{1}{2}$	5 $\frac{1}{4}$

The two-cylinder motors present advantages in their compactness and simplicity for use in light delivery wagons, though their field of usefulness is by no means

removed without disturbing the oil pump or any other part of the mechanism. By the removal of a single wing nut, the aluminum plate by means of which the valve stems and push rods are enclosed may be taken off and the design of the intake and exhaust manifolds is such that very little hindrance is given in the removal of valves. Drop forged bridges hold the manifolds in position and may be quickly and easily removed. Completing the whole Beaver scheme of accessibility, the unit power plants are supported at three points, with the third point at front, and the removal of the whole unit intact is facilitated. Throughout the whole of the engines, care



BEAVER SIX-CYLINDER AND FOUR-CYLINDER UNIT CONSTRUCTION POWER PLANTS

the season of 1912, which just has been made, marks the beginning of their ninth successful year, and during the eight years they have been on the market they have made for themselves a niche in the automobile hall of fame.

Two-cylinder, four-cylinder and six-cylinder motors, ranging from 15 to 50-60 horsepower are included in the line as well as four- and six-cylinder unit construction power plants of from 28-30 to 50-60 horsepower; all are so dimensioned as to make them applicable to standard chassis for both pleasure and commercial vehicles, which feature also makes them available to replace worn motors or slightly smaller ones. The 12 types which are regularly stocked are as follows:

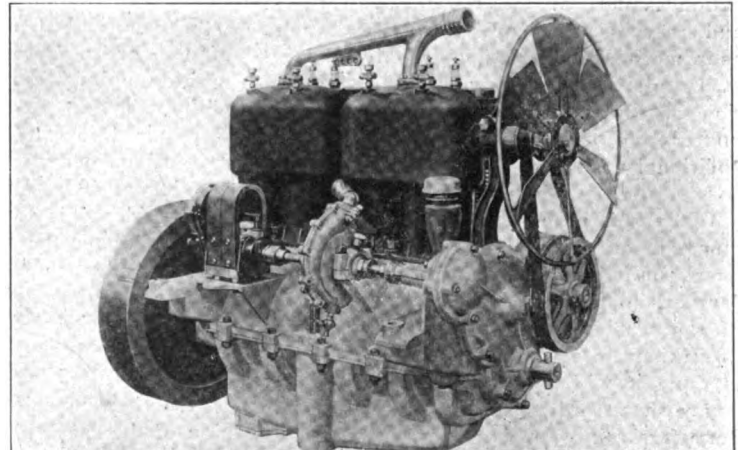
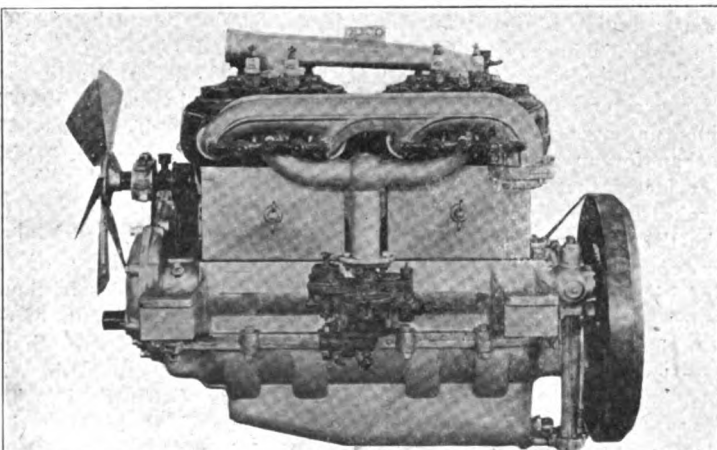
limited to commercial vehicle work. They have been and still are used by a number of manufacturers of well known pleasure cars, and their record for efficiency is only equaled by their reliability. The four-cylinder motors and unit power plants also are particularly adaptable to commercial vehicles by reason of their sturdy design, and it is not unlikely that their reputation in this field soon will equal that gained in the other branch of the automobile industry.

In the construction of the four- and six-cylinder motors, all of them being practically identical except as regards their dimensions, particular attention has been given the necessity for accessibility. Thus, the entire bottom of the crankcase may be

in design and construction is evident; rigid inspection during different stages of assembly ensures a high standard of excellence, and careful tests after completion make the shipment of other than perfect engines an impossibility.

Cylinders are cast in pairs with siamesed intake and separate exhaust ports. Water-jacketing is extremely liberal, ensuring freedom from overheating troubles, and manifolds are properly proportioned to allow of maximum efficiency. One of the smaller points which indicates the desire of the manufacturers to produce only the best is revealed in the valves, which have gray iron heads fused to nickel steel stems; the valve-seat angle is 45 degrees.

Conforming to most approved practice,



THE 28-30 HORSEPOWER BEAVER ENGINE AND THE 45 HORSEPOWER MODEL

pistons are made extra long to eliminate side play and noise. Oil grooves are provided below the piston rings, which are eccentric with 45-degree butt joints and accurately ground; relief holes are drilled through to carry off surplus oil. The piston pin is of special seamless steel tubing hardened and ground to micrometer gauge; the pin is fastened to the connecting rod, the bearing being in the piston bosses. Connecting rods are drop forged of open hearth steel and are adjustable only at the big end. Die-cast nickel bronze bearings are used and these are shimmed in place.

Being one of the most important of the component parts of a motor, the crankshaft has been given particular attention. It is forged from the best high carbon steel, after which it is specially heat treated and ground to within the thousandth part of an inch of the proper size. The flywheel flange is forged integral with the crankshaft. The camshaft is a particularly rigid one-piece forging and the shape of the cams is such that noiseless valve operation is assured. The valve lifters are of the roller type with hardened and ground parts. Further increasing the silent operation of the motor, the camshaft actuating gears are helical.

Lubrication is effected by means of a gear pump which forces the oil through a distributing channel in the upper half of the crankcase from which it flows to the main bearings, connecting rod bearings and timing gears. Though no dash gauge regularly is supplied, provision for one is made by inserting in the oil line a test plug from which a pipe may be led to a gauge and back to the engine. The entire lubrication system is enclosed in the crankcase and still is easily gotten at by the simple expedient of dropping the lower half of the crankcase. Particular attention has been given to ensure oil-tight bearings and leakage of oil is rendered impossible.

In the unit power plants, the clutch is of the three-plate type with Raybestos faced surfaces operating against ground steel. The leverage of the clutch pedal has been carefully worked out so that minimum pressure is required and smooth action is ensured. Three speeds forward and reverse are provided in the change gear mechanism, which is selectively operated and is so designed that the substitution of center control levers is a simple matter and can be made at very slight additional cost.

When it is necessary to be out in a rain storm in an automobile that is minus the usual top it is a wise plan to pull the seats forward so that the water from the backs of the seats runs down past them instead of on them to accumulate in a pool. If this is done it will be possible to keep fairly dry with an ordinary raincoat. There are very few raincoats, however, that will remain water-proof if the wearer sits in a pool of water with the car in motion.

IMPORTANCE OF PROPER TIMING

Bosch Engineer Shows Why Spark Advance Should Depend on Shape of Chamber—Engine Speed a Factor.

Though there probably is no phase of automobile operation with which the average individual is less familiar than the ignition system with its numerous mechanical intricacies, it is a well known fact that the efficiency of the engine depends in no small degree on the proper timing of the spark. It is not possible to establish any cut and dried rule for timing for the simple reason that the proper point of ignition varies according to peculiarities and characteristics of the individual engine.

There are a great many points which must be considered in fixing the exact time at which the spark should take place, and in calling attention to them, Roger B. Whitman, who is consulting engineer to the Bosch Magneto Co., points out that whereas it has been stated that the spark should take place when the piston has reached within one-eighth of its stroke of top dead center, this cannot apply to all engines. Under these conditions, all engines of five inches stroke should be so timed that ignition takes place when the piston has reached $\frac{3}{8}$ of an inch of top dead center.

"It is quite true," he says, "that some engines of five inches stroke require an advance of $\frac{3}{8}$ of an inch, but it is equally true that with other engines of five inches stroke an advance of $\frac{3}{8}$ of an inch would be incorrect. If an engine is so constructed that the combustion space is compact," he explains, "the required advance would be considerably less than the proper advance for an engine in which the combustion space is considerably extended." Which is to say, that if the engine is of the "valve-in-the-head" type, in which a straight, compact combustion space is provided, advance must be less than when valves are located in pockets at the sides, as in the ordinary T-head type of engine, and in which flame propagation is slower.

"The normal speed of the engine is one of the great factors in establishing the ignition point," he continues, "for it goes without saying that a far greater advance is required for an engine running at 1,200 revolutions per minute than for an engine running at 600. Another factor that must be considered is the stroke of the engine, for the longer the stroke the greater must be the advance, other conditions being equal. Thus an engine of 5 inches bore and 7 inches stroke will require a greater ignition advance than an engine of 5 inches bore and only 5 inches stroke.

"Another consideration will be the location of the spark plug. If this is located in the center of the combustion space, and with its point projecting into the mixture, a

small advance will be required, whereas if the plug is located on one side of the combustion space and is possibly pocketed, the advance required will be far greater. The exact advance for maximum efficiency can only be determined by experiment.

"In timing a magneto of the usual rotating armature type, fair all around results may be obtained by so setting it that in the full retard position it gives its spark at the instant when the piston is at top dead center. Whether or not the advance position will be correct can only be determined by trial, and if it is found not to be so, the relation of the armature to the crank shaft can be altered in accordance with tests until the results are satisfactory.

"Another statement that is made is that if a user of an engine desires to have it throttled down to a very low speed, the spark plug points should be opened up until they are fully $\frac{1}{16}$ inch apart.

"This statement is exactly contrary to the actual conditions. When a magneto runs at slow speed, as will be the case when the engine is throttled down, it does not produce a current of as high a voltage as will be the case when it operates at increased speed, and in consequence the current will not be able to jump across as wide a spark gap. Thus, if it is desired to throttle an engine down low, the spark gap must be smaller than is required for higher speeds. For high tension magneto ignition $\frac{1}{50}$ inch spark gap will give correct results for all normal operating speeds. Engine characteristics have some influence on the size of the spark gap, but in no case should this gap be greater than $\frac{1}{32}$ inch."

Forty-four Millions for Southern Roads.

To those motorists who have toured Southward and have had occasion to revile road conditions in general, Secretary of Agriculture Wilson's statement to the effect that in the past year no less than \$44,000,000 has been expended for road improvements by Southern States alone may come as a surprise and, perhaps, serve as balm for wounded feelings. This enormous amount is made by expenditures in the various States as follows: Alabama, \$3,404,000; Arkansas, \$2,450,000; Florida, \$1,505,000; Georgia, \$2,500,000; Kentucky, \$2,500,000; Louisiana, \$1,132,354; Maryland, \$2,250,000; Mississippi, \$3,130,000; North Carolina, \$4,505,000; Oklahoma, \$1,505,000; South Carolina, \$1,100,000; Tennessee, \$3,900,000; Texas, \$7,600,000; Virginia, \$4,004,000; West Virginia, \$1,625,000.

Western Dealers Form an E-M-F Club.

In order to extend the business of the E-M-F and Flanders automobiles in South Dakota, Iowa and Minnesota, agents of the Studebaker Corporation in those States have formed the E-M-F Auto Club, with headquarters at Sioux Falls, S. D. The officers are: President, C. R. Newby; vice-president, J. W. Johnson; secretary-treasurer, H. M. Hassenius.

Truck Problems; The Attitude of the Buyer

Though prospective purchasers of commercial vehicles usually are disposed to place first what make of truck to use, in the opinion of Ellis P. Howland, who read the principal paper before the last meeting of the Motor Truck Club of New York, that consideration really should come last. In his paper, Howland, who is automobile editor of the Journal of Commerce, deals with "The Buyer's Attitude" and after a lengthy prelude in which he remarks that the same salesmanship which achieves results in the field of pleasure cars will not bear fruit in the commercial vehicle trade, he points out that it is only in comparatively recent times that the differences have become known and appreciated.

"There is as much fundamental difference between a pleasure car and a commercial truck," he says, "as between the fine-bred race-horse and the truck horse. From the day that truth dawned on the manufacturers of motor vehicles may be dated the date of the motor truck. That it was destined to enter an immense field of opportunity is beyond question; that it was handicapped by early mistakes and failures is the reason for much of the prejudice now encountered among business men on which their 'attitude' which I am to discuss, is based. Misunderstanding and an imperfect and discredited product are very unfortunate elements on which to build a successful new system of transportation. . . .

"The typical truck salesman has not been, until very recently, a trained business man, and has totally failed to recognize in the buyer's attitude a legitimate condition to be met in a helpful spirit. His training came in selling pleasure cars to men moved by the sporting spirit. He sold a product which had passed its experimental stage years ago; which never had to undergo the exacting conditions which ordinary commercial work imposes on the truck. When a business man demurred and demanded proof or assurance that trucks would do his work and accomplish the economies represented, the salesman too often regarded him as 'fussy' rather than conservative. Such customers were the kind usually 'passed up' in selling pleasure cars, as too much bother to be worried with in the rush of the fast-growing industry. But no such treatment would go with business men. Till they were fully satisfied with the dependability of the truck, they were willing to stick to horse-hauled vehicles.

"A prominent manufacturer's New York agent said to me, the other day, that he would have bought a couple of trucks long ago if he had been able to find salesmen who impressed him as having faith in their

product and their own representations. 'They refused to answer my questions or to give me anything more definite than promises,' he said. 'Some of them were my best friends but when I spend \$4,000 or \$5,000 on something not yet perfected, I want something more stable than the opinion of my very closest friends. No one appeared able to give me any real assurance till very recently. But lately the attitude of the seller is changing and now I am in correspondence with several truck agencies and expect to buy two trucks within a few weeks, when I decide which is the best one to buy. They are all making pretty strong claims, some of them so strong I don't believe them, but when a manufacturer is willing to give me a written guarantee of what his truck will perform, and to show me authentic and conservative figures as to what it has done, I cannot refuse to listen to him. Besides, I have needed those trucks all along.'

"To my mind there is a lot of valuable light in that short statement. Business men do want trucks and as a rule do not expect too much from them. They realize that trucks are, even now, in a somewhat transitory state of refinement and are uncertain which truck to buy. Nor is this uncertainty due solely to the fear of repair costs; it is the loss of efficiency during period of repair that counts most with the business man. He may afford one or two spare horses or horse-trucks in his equipment for emergency, and if he can't he can find ample supply for hiring, for horse trucks are common everywhere. Not so the motor truck; if it goes out of commission, the business man finds himself crippled.

"I need not remark how recently the force of this situation has dawned on truck manufacturers. Today the leaders realize that the thing they sell is not so much machinery or a mere physical vehicle, but 'service.' When a business man is assured of service—efficient, economical service—he has little hesitation in buying trucks. To encourage him to this end, most of the leading truck concerns are devoting quite as much attention to the maintenance of service stations as they do to the making of trucks, and those concerns are very generally receiving the recognition they deserve.

"Close observers of the recent development of the truck business cannot fail to discover that the 'getting together' process between buyer and seller has been by mutual concessions and reforms. The manufacturer has realized the necessity for developing a totally different vehicle from that which he first intended; he has accept-

ed the buyer's conservatism as something legitimate; has studied it and met the buyer's needs with intelligent information. Finally, he has realized his responsibility to keep his trucks in running condition and is co-operating with the buyer to that end. On the other hand, buyers have come to see that they cannot afford to wait for the perfect truck; that trucks made today are as efficient as anyone can reasonably expect, and, with reasonably intelligent use, will operate economically today—irrespective of whatever greater economy they may accomplish years hence. Till business men are willing to use trucks, assume their share of this uncertainty and develop the field for improvement, they are defeating their own interests quite as much as those of the manufacturers. . . .

"There is another influence which affects the interests of both user and maker of trucks—the lack of intelligent and efficient adaptability. It is more important even than prudent use. Having for so many years confined his traffic views to the horse as a unit of efficiency, the business man is disposed to compare his motor trucks with horses, rather than to start fresh, with his traffic problem on one hand and a comparatively new and untried utility on the other. Economy in motor trucks demands their use along entirely new lines; that loading methods, routing, systematization of delivery service, methods of garaging, dividing the work of driver and helper, and innumerable other elements be rearranged and fitted to the new method of transportation. For some kinds of traffic horses still have the advantage over the motor truck for economy; on other kinds, the horse is destined to pass into memory. City haulage and country haulage are totally different. Routes with frequent stops and many deliveries require totally different service from long hauls and the delivery of practically a whole load at one point. And, finally, the care of a truck involves entirely different attendants from that of horses—men of different caliber, frequently.

"One unfortunate feature of comparisons usually made by owners is the fact that few owners of horse-drawn trucks ever have accurately tabulated and studied their costs of horse haulage, and when they undertake to compare the new form of transportation with the old, they fail to realize that mere figures should be modified by a recognition of the better, quicker, more elastic and totally different kind of service performed by the truck. Some improvements in modern commercial life ought to be above rigid comparison with dollars-and-cents standards.

"The first consideration in the mind of the intelligent buyer of trucks is whether his traffic needs can best be performed by a motor truck; this quite independent of the element of cost. Service and efficiency are the progressive business man's first thought. Next, perhaps, comes cost. Both are elements in successful competition. The third consideration, logically, is as to what kind of truck will best do the work, for well informed business men are coming to realize that there are distinct and undeniable advantages claimed and probably possessed by both gas and electric trucks, each in its own place and class of work. How large shall the truck be and what kind of a body should it have comes next.

"Having settled all these, comes the last consideration—sellers are disposed to regard it as rightfully the first—viz., what make of truck shall I buy? In the minds of experienced users of trucks this is really one of the last points requiring attention; the others must be settled before the buyer can intelligently consider the actual truck he is to buy. Here come in such questions as relative cost of installation, relative cost of operation, ease of control, flexibility of service, accessibility to efficient service station, simplicity of construction, comparative costs of repair and the clearly defined measure of responsibility the rival sellers are willing to assume with a substantial guarantee.

"It is at this point and not till then that the salesman enters the buyer's problem, and because buyers, advised or experienced, have come to recognize this, there has lately come about a radical change in the character and caliber of the truck salesman. The men who possess the greatest records as salesmen of trucks have been men who put themselves in the place of the buyer, who helped him study his problem, honestly endeavored to make their product fit his needs, advised him as to methods of use and generally played the part of friend and adviser. Such men have themselves learned valuable lessons from the experience, and sales based on such methods have usually resulted in a co-operative effort between buyer and seller to make motor truck installations succeed.

"That trucks intelligently made, intelligently sold and intelligently used are succeeding, no man with an open eye and an open mind can doubt. . . . Cases are multiplying fast where first trucks are selling two, five and even fifty on re-orders from the same establishments. Manufacturers who have adopted the program of co-operation with the user are today finding it almost impossible to keep pace with the demand for their product. . . .

"There is an immense field for discussion in connection with the various forms of guarantees and maintenance agreements in use and suggested; in the relative responsibilities of buyer and seller; in the question of whether trucks should be sold fully equipped, ready to run or on the unit sys-

tem of a divided contract, in which chassis-maker, body-maker, tire-maker and various others shall have a part in the responsibility and guarantee.

"There is the question of 'quantity price' on trucks; whether the owner of several trucks should enjoy a lower price on re-orders than the buyer of one; whether it is desirable for the owner to confine his equipment to one make or several. I find that opinions on these points differ among users, though there appears to be a general opinion that, with a liberal manufacturer, a user would prefer to trust his traffic with one, rather than with a variety of brands. There is also a common opinion among buyers that trucks today cost more than they should and it might be well to speculate on the probable influence on first cost which will result when manufacturers feel justified in making trucks in larger quantities in order to secure a lower cost of production per unit. We might also consider tire costs and the prospects, if there are any, for lower tire prices and higher tire efficiency—both very important factors in the growth of motor trucking.

"Both these are too specific for my purpose tonight. My aim has been merely to suggest some of the lines on which buyer and seller disagree, to point out some of the reasons why such misunderstandings have been inevitable, and to predict that with a better understanding on both sides, born of a more widespread use of trucks and therefore a greater familiarity with them, most of the avoidable dissensions are being rapidly modified."

Luxurious Landaulet for Delhi Durbar.

What is described as the largest private automobile ever constructed, recently was shipped to India, after having been exhibited at the London show. The car is a landaulet by Offord & Sons, mounted on a 38 horsepower Daimler chassis, and seats eleven persons. It has a wheelbase of 14 feet (168 inches), and is fitted with special armchair seats so constructed that they may be used either forward or backward, and also may be removed from the car and carried on the roof in boxes provided for this purpose. The finish of the car is the most luxurious imaginable. Its upholstery is delicate light blue with lace to match; the windows are fitted with silk blinds; the mounts are inlaid silver both outside and inside the car, the whole body being of aluminum. Despite its immense size, the car is remarkably light, weighing only 3,850 pounds. It was manufactured for one of the Indian princes to be used at the coming Delhi Durbar.

London Proposes Petrol Pipe Line.

The assertion of a British authority, Sir Marcus Samuel, to the effect that a three days' fog on the Thames river would result in a serious interruption, if not a complete cessation, of the supply of gasoline for London, is receiving considerable attention

at the hands of the Commercial Motor Users' Association. As the stoppage of the gasoline supply would involve the virtual crippling of very nearly all motor omnibus, motor car, motor cab and motor truck service, the general committee of the association, of which Col. R. E. Crompton, C. B., is chairman, presented at the last meeting a project for the laying of one or more pipe lines for the conveyance of gasoline from the Thames estuary to various parts of London. As the association includes some of the largest consumers of gasoline in London, among whom are the London General Omnibus Co., Carter Patersons, Pickfords, Harrods, Maples, Selfridges and the leading cab companies, it is expected that the proposed pipe lines will become a reality. For this project Parliamentary sanction will be required and the association will support an application for the necessary powers. City financial circles, it is understood, are favorably inclined toward a definite scheme of the kind.

Wet Upholstery and Slip Covers.

"No more red upholstery for me," remarked a veteran motorist, the occasion being the purchase of a new car. "It looks all right—there is nothing prettier than a gray car with red cushions—but never again! I had one experience with fiery-hued leather and I have no wish to repeat it. The whole trouble was that the color was not fast. It was fast enough in dry weather but immediately the cushions became wet they left their mark on whoever sat on them. I don't mean to say by this that all red cushions are the same, for they are not; I have seen red upholstery that you could not get a smudge from under any conditions. But I simply won't take a chance. Slip-covers are given the taboo also, for a similar reason. When they are wetted by rain or through the too assiduous attention of the washer, they stay wet indefinitely, and no one likes to sit on damp cushions. Just plain leather for me, because if it is wet it can be dried off with a chamois and in two shakes it is as dry as it ever was."

About Working Under Jacked-Up Cars.

Though it is one of the unwritten laws of all really good garages that when a car is jacked up no one shall be permitted to work under it, the rules are not always adhered to and in not a few cases results have been disastrous. If it is absolutely necessary for some one to work under a car when it is raised on jacks great care should be taken to see that the wheels that rest on the ground are chocked so that they cannot move even a fraction of an inch. It is not sufficient to see that the emergency brake is applied when the front wheels are raised for the reason that there always is a certain amount of lost motion before brakes hold, and this slight movement may be enough to throw the car off the jacks.

FACTORS AFFECTING FLYWHEELS

Some of the Considerations Involved in Their Design—Influence of Weight and Size.

Of the many more or less obscure problems involved in the designing of modern automobiles, that dealing with the proper size and weight of flywheels is perhaps least thought of except by those to whom its solution falls. And yet it is of tremendous importance that flywheels receive the most careful and thoughtful study. The importance of proper designing affects not only the manufacturer, for a small amount of variance in the size or weight of a flywheel may wholly alter the action of an engine and thus unmake a car, but it affects the purchaser as well because a flywheel which is not properly designed may at any time become an instrument of destruction due to the action of centrifugal force.

Due to the care which is taken in designing, however, cases of "exploded" flywheels are extremely rare. As a matter of fact it is doubtful if a single case could be found in which the flywheel of an ordinary car used for touring only had exploded, or to use a more correct term, burst. But that the danger exists in racing cars quite recently has been proven by several occurrences. Perhaps the most interesting case in point embraces the bursting of the flywheels in two cars of the same make within a few days of each other. Both cars were entered for the Elgin races. The flywheel in one of them burst in practice and that in the other "let go" in the early stages of the race.

Still another case of the same kind occurred in the first lap of the light car division of the Santa Monica race. But so far as known no such trouble ever had been experienced before with the same makes of cars.

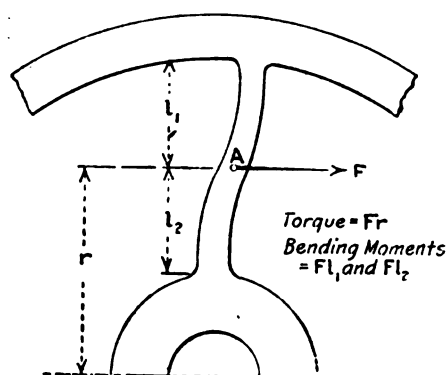
All of which emphasizes the fact that the strain on the rims of flywheels really is tremendous. Most flywheels are cast iron, and on account of their thickness there is difficulty in securing absolute soundness. The ultimate limit of strain which can be allowed with safety is 10,000 pounds per square inch. Using a factor of safety of 10 gives a maximum allowable strain of 1,000 pounds per square inch, which corresponds to a rim velocity of 6,085 feet per minute.

Few flywheels, except those in racing cars, ever attain this rim velocity. Approximately half this rim speed is all that is attained by the ordinary flywheel in the ordinary touring car or runabout. In the special "flyabouts" and "speedsters" which gradually are making their appearance on the market, however, it is not unlikely that

this rim speed is more nearly approached, while in bona fide racing cars greater rim speed is a common occurrence. That even this factor of safety of 10 is entirely too low is the opinion of W. Trinks, who is an engineer of wide experience in the designing of flywheels. In an illuminative article in the Scientific American he elucidates many of the problems with which designers of flywheels have to contend and makes plain many of the points involved. "Average practice in the design of cast iron flywheels," he says, "dictates an upper limit of a mile a minute or 88 feet per second for the mean rim speed. Since the hoop stress in a revolving cast-iron ring is given by

$$\frac{(\text{feet per second})^2}{10}$$

the hoop stress in average flywheel practice is less than 800 pounds per square inch. The tensile strength of cast iron is about



22,000 pounds per square inch and at first thought the factor of safety of

$$\frac{22,000}{800} = 27.5$$

seems ridiculous. Yet the occasional bursting of a flywheel preaches caution and deters engineers from adopting higher speeds. It is known that the difference between simple theory and actual practice is caused by four different agencies:

- (1) The weakening of the rim by the joints of sectional wheels;
- (2) Casting stresses;
- (3) The bending of the rim by the forces in the arms;
- (4) Flaws. . . .

"Casting stresses depend not only upon the design of the wheel but upon foundry practice as well; they are uncertain, and in many designs of wheels their presence cannot be detected. The author remembers a wheel of standard design which, while lying peacefully in the yard of a foundry, pulled an arm off, near the hub, even before the wheel had been delivered to the machine shop. To judge from this one example, even no speed is too high for a flywheel. Fortunately, such a sad combination between poor design and poor foundry practice occurs but seldom. . . .

"With the shrinkage strains practically eliminated the determination of centrifugal

gal strains in the arms and in the rim can be made with some accuracy. Since a woe-ful amount of ignorance exists on the distribution of forces in flywheels a review of the method of calculation will probably be welcomed by 'seekers for the truth.'

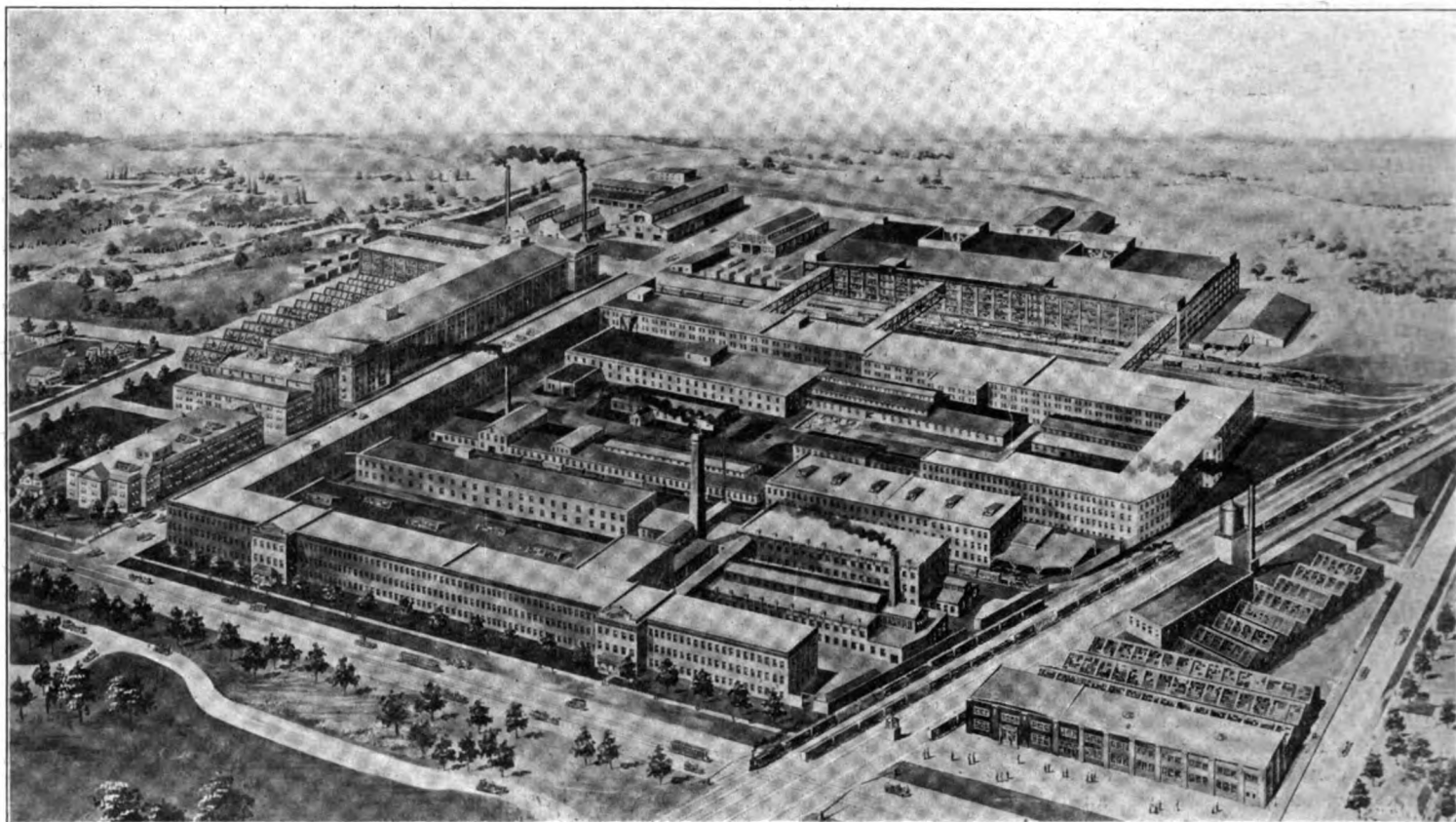
"Imagine the rim of a wheel rotating by itself—that is, disconnected from the arms; then its diameter will grow a small amount. Next imagine the arms rotating disconnected from the rim; then they will also grow in length, but not as much as did the rim. If both rotated separately, there would consequently be a gap between the arms and the rim. In reality there is no such gap, from which it must be concluded that the rim pulls the arms out and that the arms pull the rim in. From the size of the gap and the dimensions of the wheel the force acting between the rim and the arm can be computed in this manner. The arm is a rather stiff spring with a certain scale; the rim is a spring with another scale; the imaginary gap furnishes the deformation of both springs due to the force under consideration. These data together with the self-evident condition that the force on both springs must be alike (one being the reaction for the other) make the calculation determinate. A few words may be said about treating the arms and the rim as springs. The arms are straight bars and their deformation by direct tension is easily computed. The rim presents more difficulties as its deformation is made up of two components: First, a reduction of the diameter of the rim by the hoop tension which balances the arm pull; second, a flexure of the rim by the arm pull. All of these calculations, namely, the computation of the size of the gap, the stiffness of the two springs, the rim-to-arm pull and the resulting stresses, are thus purely a matter of applied mechanics; they offer no fundamental difficulties, but are very tedious, because no general formula can be employed.

"On the subject of bending stresses in the arms much confusion exists in the minds of many engineers. Each arm is rigidly held at the hub and is more or less rigidly held at the rim; it can therefore deflect only as is shown in Fig. 1, presenting an inflection point A whose location depends upon the relative stiffness of the arm and the rim. In flywheels proper with deep rims the point A lies near the middle of the arm. In pulleys with shallow rims the point A lies near the outer part of the arm.

The exact location of the inflexion point can be mathematically determined, but the process is tedious, and a skilled designer soon learns to guess the location of this point with considerable accuracy. Force F , Fig. 1, times the radius r gives the transmitted moment. This simple reasoning teaches that the bending at the rim is frequently just as great as the bending near the hub.

"The outer rim speed of this wheel, as before mentioned, is 10,000 feet per minute,

OVERLAND FACTORY IN TOLEDO, OHIO, AFTER ITS SEVERAL RECENT ENLARGEMENTS



but this, is by no means the commercially attainable limit. Wheels with plate walls gripping over a steel rim in halves can be run safely at 15,000 feet per minute. The simple formulae for hoop stress then are no longer applicable, because solid disks have taken the place of arms. We all know that properly designed disks can be run at very high speeds, thus the De Laval disk, for instance, can be run with safety at a speed of 72,000 feet per minute.

"While it is thus apparent that much higher rim speeds may be used than have heretofore been customary, it should not be overlooked that commercial rim speeds depend not only upon strength of materials and design but also very largely upon dollars and cents. Rotative speeds in steam engine practice have been moderate, and low rotative speeds do not permit high rim speed without excessive diameters of wheels."

When Substituting Grease for Oil.

While often it is possible to substitute grease for oil as a lubricant with good results, great care should be taken in making the change. This is particularly so in the case of differential mechanisms, many of which apparently may be lubricated with either grease or oil. The hardest part of the differential to lubricate and the most likely to suffer, therefore, is the "spider" on which the small bevel pinions are carried. Usually, this spider is case-hardened and the pinions may or may not be bushed.

holes usually are drilled in the pinions through which the lubricant is worked by the action of the gears. If, however, the user makes the mistake of using grease which is too heavy, to lubricate the differential, the repairer is likely to find that the bushings of the small pinions have been cut to pieces, because the heavy grease could not enter the small holes. The better way is to use a thinner grease; a grease of the consistency of thick cream generally may be relied upon, though if the manufacturer of the car recommends oil, it is best, always, to follow instructions.

Waverley Weaves a Glorified Catalog.

The Waverley 1912 catalog embodies a new idea in catalog building. The earliest product of the Waverley company's factory in Indianapolis was named after the Waverley novels. In casting about for a suitable scheme of decoration for this year, the Waverley people selected incidents and characters from the novels themselves and scenes associated with Abbotsford, the home of Sir Walter Scott, as the setting of their narrative. The result is one of the most strikingly beautiful catalogs that ever has seen the light. It truly is an edition de luxe.

Thus the outside cover displays in green and gold figures in the medieval armor taken from the entrance hall at Abbotsford. The inner cover shows Scott's coat of arms under a three color picture of the Waverley 1912 limousine in the garden at Abbots-

ford. Across the tops of all the inside pages runs a frieze in three colors and gold representing the tournaments in Ivanhoe. The portrait of Sir Walter backs up the title page and in the wide margins on either side of the printed matter appear panel portraits of different Waverley characters. The two center pages of the catalog are devoted to a large four color half-tone of a Waverley car on the Abbotsford estate.

The artist employed to illustrate the catalog was Frederick Richardson, the well known book illustrator of Chicago. His work shows evidence of considerable study and research in the selection of armor and costumes as well as of skilful handling of line and color. Besides the purely decorative pictures the catalog is well furnished with half-tone illustrations of Waverley electric cars, showing both interior and exterior views.

To Facilitate Drilling of Steel.

Though generally it is a very difficult operation to drill tool steel, the work may be facilitated by using on the drill a compound made of one pound of common washing soda dissolved in about a gallon of water. To this should be added about a quart of machine oil and the mixture allowed to stand for about an hour, when it will be ready for use. Care should be taken to see that the last vestige is removed from the work afterwards or rusting will result. The compound may be used the same as oil for this purpose.

Chains for Cam Shafts; Their Adjustability

Despite the widespread adoption of the "silent" chain by foreign manufacturers and the apparent success which has attended its use in the driving of camshafts, water circulation pumps and magnetos, there still remains considerable difference of opinion regarding the exact conditions under which the most satisfactory results may be obtained.

The principal controversy concerns the necessity for providing means of adjustment, and on this point the two largest chain manufacturers in England, Messrs. Hans Renold, Ltd., and the Coventry Chain Co., are at variance. As a matter of fact, the majority of engine manufacturers provide means whereby the distance between chain wheel centers may be altered within certain arbitrary limits to allow for wear, and this, according to Charles G. Renold, of the firm which bears his name, is the only method by which the best interests of all concerned, the engine manufacturer, the chain manufacturer and the purchaser of the engine, are served.

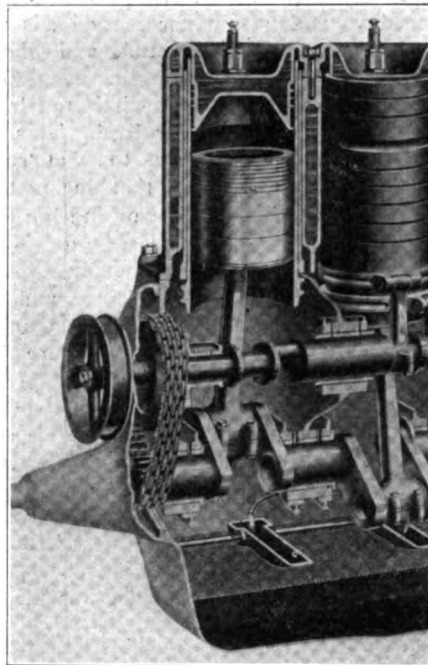
Speaking for the Coventry Chain Co., however, A. S. Hill, who is managing director of that company and long has been considered an authority on such subjects, states that adjustment is unnecessary and advocates the doctrine of fixed chain wheel centers in no uncertain terms. Inasmuch as the point in question is probably the most vital in the successful application of silent chains, the opinions of these two authorities cannot help but be of surpassing interest to those connected with the automobile industry, for although there are only three American cars in which silent chains are used, namely, the Stearns-Knight, the Stoddard-Dayton-Knight and the Columbia-Knight, indications point to a much more general use of this method in the not far distant future.

"At first sight," says Renold, in arraigning his side of the question, "it appears very much easier to arrange for a drive with fixed centers, but even here the advantage is more apparent than real, since such a drive requires two chains and four wheels set at predetermined center distances, instead of possibly one chain and three wheels, in which the position is conveniently adaptable to the other requirements of the design and may be that previously used for spur gearing. Beyond this, however, the non-adjustable drive for camshafts or magnetos suffers from grave drawbacks, the nature of which it is our business to understand."

"It may be stated at once," he continues, "that the arguments against the fixed center drive are based largely on the defects

of present-day chains, and their force cannot be judged a priori grounds, but only after a close consideration of the defects and their magnitude. Such a consideration will show that as things are at present, these defects are unavoidable. It is, however, possible that such improvements may in the near future be made in silent chains that the arguments may be robbed of some of their force, but it is doubtful whether the scale will ever be turned in favor of the non-adjustable drive.

"We will now examine the conditions under which the fixed center drive works, and the disadvantages from which it suf-



COLUMBIA CAM SHAFT DRIVE

fiers, leaving consideration of the adjustable drive until later. A camshaft drive, especially with poppet valves, is an impulsive load, and the same is true of the magneto. The motion of the crankshaft, which drives the camshaft, is also likely to be impulsive, particularly in the event of any irregular firing. In addition to this, it must not be forgotten that a chain drive on a car, subjected to every kind of vibration, cannot be regarded as working under the same conditions as a chain on a fixed piece of machinery. In short, chains used for camshaft and magneto driving are subject to innumerable impulses, the most severe being those caused by the nature of the load. Now the effect of these impulses, unless the chain is fairly tight, is to produce whipping in the chain, which throws a much greater load than

that of the power pull on the chain, and consequently causes it to wear rapidly, thus further lengthening it, and giving still greater encouragement to whipping, which is thus intensified, the effect being cumulative and of increasing rapidity, until finally the chain breaks, although the driving pull is much less than the breaking strength of the chain.

"A further disadvantage of this type of drive is that slack in the chain can act as back-lash and allow variable timing of the valves or ignition. We are inclined to think, however, that this second disadvantage, important as it undoubtedly is in theory, is in practice overshadowed by the first one, i. e., the risk of chains wearing out quickly and breaking through whipping. It will be time enough to consider the second trouble when the first has been cured.

"From the foregoing arguments it will appear that since so small an amount of sag causes serious whipping, the chain therefore, ought to begin its life either with no sag at all, or with the very minimum. This brings us to the question—how much slack, if any, is allowable in the drive to start with, and at what point does the permissible quantity become exceeded? As will be pointed out later, a slight amount of play in the chain is necessary for satisfactory running; which may be put as being equal to a sag of $\frac{1}{8}$ inch, this representing the necessary minimum. At the other extreme, judging by drives which we have measured, we find that with a center distance of about 5 inches, the wheels having, say, 19 teeth and 38 teeth, not more than $\frac{5}{8}$ inch sag is allowable. This means that it should not be possible to press the center of the slack side of the chain more than $\frac{5}{8}$ inch away from the straight chain line, i. e., the tangent to the pitch circles of the two wheels. With a chain of $\frac{1}{2}$ inch pitch, 50 pitches long, this represents an approximate elongation of .4 inch, equal to .008 inch per pitch, or about 1 $\frac{1}{2}$ per cent.

"Now for an ordinary silent chain drive it is possible to use the chain until it has developed about 4 per cent. stretch, and even allowing for the severe conditions and the accuracy of gearing required for camshaft driving, it would still be possible to use the chain until it had about 3 per cent. stretch. From the above figures it will be seen that owing to the whipping and consequent risk of breakage, the chain has to be discarded when it has undergone only about half of the wear which is in it, and even from this residuum of life certain deductions must be made, as we are about to show. First, we would point out that as

whipping increases, the rate of wear increases, due to the extra load produced. If whipping can be eliminated, not only would double the wear in the chain be available, but this would represent considerably more than double the amount of life, since with no whipping the wear would always be at the slowest rate. Secondly, having shown how far the wear may be allowed to proceed before the chain must be discarded, we must draw attention to the fact that not even all this amount of wear is available for chain life. Two facts are responsible for this, the effect of both being to reduce the available range of sag.

"The first fact is that variations have to be allowed for in any machined article, and from the nature of the case we are considering, these must all be from that dimension at which the chain would join up with the minimum amount of slack, to something larger. By working to the finest possible limits, we find the variations in the total length of a chain may be equivalent to a difference of .001 inch per pitch from the shortest to the longest.

"The second fact is, as stated above, that for satisfactory running at the high speed required, a slight amount of play in the chain is necessary even to start with, or no oil can enter or remain between the bearing surfaces, and galling or seizing will result. To give this play, the chain must have at least .125 inch of sag on the slack side. If the full amount of the manufacturing limit of .001 inch per pitch be taken advantage of, this sag will be further increased to .25 inch. It will be remembered that the outside limit of sag allowable, as before stated, we put at .625 inch, a limit which is reached when the chain is normally only half worn out. If, then, we make the necessary deduction of .125 for the necessary sag, and the possible deduction of another .125 inch for manufacturing inaccuracy, it will be seen how little of the chain's possible life may be available.

"Moreover, the most useful part of the chain's life, viz., when the rate of wear is slowest, due to the tension being correct, may be wasted where chains are on the long side, even though they are still within the manufacturing limit of accuracy.

"The obvious comment on the foregoing arguments is that the limit of .001 inch per pitch is not fine enough, since if this limit were finer, less allowance need be made for manufacturing inaccuracy, i. e., the outside limit of $\frac{3}{8}$ inch sag would not be reached until the chain had worn to it, instead of being reached earlier through the accident of inaccurate manufacture.

"The desirability of finer limits of accuracy brings us to the consideration of the possibility of producing chains of 'dead length,' which would all join up at exactly the right tension to start with. Several methods have been suggested to us:

"Make a chain to 'dead size' with no variations. This obviously does not ema-

nate from engineers, and requires no discussion. The limits within which we can hold the variations are dealt with fully later.

"Make the variations on the short side, and join up the chain by force. This can be done, but apart from the desirability of a slight amount of play in the chain, it means that every chain plate has to be sprung, which destroys the accuracy of the angles of the gearing faces, makes the chain run 'hard' and hot, and more noisily than necessary. It is liable to stress the material of the plates across the arched back above its elastic limit, which distortion of the links will cause uneven running, since the chain combinations are of unequal strength, and each alternate pitch will pull out more than the others. Special appliances would be needed to draw the chain ends together when mounting, and replacement chains would, therefore, be very difficult to mount, except at the works of the car makers. It is an unmechanical proceeding, and puts unnecessary loads on the shaft bearings, chain studs and wheel teeth.

"Make the chain short in pitch and 'run it in' to exact pitch under load. This is based on a misconception as to what 'running in' does. It is found that during the first few hours of a chain's working life the wear is more rapid than later on. This rapid initial wear is due to bedding down of the stud and bush surfaces, and if 'running in' were done at all, it should obviously be carried to the point where the bedding down is complete and the legitimate wear begins. If the chain, however, varies in its manufactured length, it cannot satisfactorily be brought to finer limits of variation by such a 'running in' process, as the amount of increased length will in itself be variable. Such 'running in,' therefore, does not help to produce chains of 'dead pitch' such as are needed for drives without adjustment.

"It is of course conceivable that each chain could be 'run in' until it reached a certain pre-determined length, but this would lead to one of two difficulties:—First, if the 'bedding down' is completed before the chain has reached the pre-determined length, it would be quite impracticable, commercially, to carry the process further, as after 'bedding down' is complete the rate of wear is extremely slow. Thus it will take two to three hours to elongate the chain .001 inch per pitch, but it will take twenty to thirty hours to produce a further .001 inch per pitch increase. In the second case, if the chain reaches the standard length before the 'bedding down' is complete, the gain due to 'running in' will be almost immediately lost when the chain is set to work. 'Running in,' therefore, even if it were otherwise advantageous, would not save the fixed center drive.

"Cut every set of wheels to suit its chain after it has been 'run in.' This could be done, but would only take care of pitch

variations in the portions of the chain that lay on the wheels. It would not cure the variations of the parts of the chain between the wheels, and replacements would be almost impossible.

"We come to the conclusion, therefore, that we must give up the idea of obtaining a chain of 'dead pitch,' and be content to work to the closest limits possible. . . .

"To sum up the case against the fixed center drive—to be satisfactory, the chain must start life, not indeed rigidly tight, but with a very definite minimum of slack. At present chains cannot be guaranteed accurate enough for this. If, on the other hand, each drive is treated specially, i. e., special cutting of wheels, special 'running in,' or special selecting of chains and wheels to suit each other, then neither the chains nor the wheels are truly interchangeable. Further, the chain must be discarded when a certain very moderate amount of sag has occurred. From this allowance, moreover, the aforementioned slight initial slackness, which is necessary for a sweet-running drive, must be deducted, while the possibility of the chain being slightly 'long' in pitch, owing to manufacturing inaccuracy, may mean a further deduction. In a word, lack of adjustment almost inevitably shortens the life of the chain by roughly one-half, and may reduce it even further.

"From what we have said, it will be seen that two conditions are necessary for a camshaft or magneto drive to be satisfactory:—

"(1) The chain must have a minimum of slack.

"(2) The chain must fit the wheels.

"We have shown that at present it is not practicable to produce chains which will always join up at the right tension at a given center distance, but as a given amount of inaccuracy in the chain has a greater effect on chain slackness than it has on the fit of the chain on the wheel, it is quite possible to guarantee that all chains shall fit all wheels. This meets the second condition, and, if the first is met by adjustment of the centers, we have all the requirements of a perfect drive. . . .

"It is too early in the day to give any very general rule, but from what we have seen of adjustable drives we believe it will be found, if the chain is run during engine tests and then adjusted, no further adjustment will be necessary for many thousands of car miles, probably not until the car is sent in for overhauling. In fact, so far as the user of the car is concerned, he need trouble no more over adjustment than if none were provided.

"Taking into consideration what we have said on the subject of initial accuracy, it will be seen that the provision of adjustment is of as much importance for starting a new chain at the right tension as it is for taking up future wear. This has an important bearing on the question of interchangeability, a point of considerable interest to the user of the car, for, even if

the original chain had been put on at the right tension with fixed centers, the task of finding a second chain to join up exactly right at the same centers is well-nigh impossible for the private individual.

"It is of course impracticable to alter the relative position of the camshaft and crankshaft. There seem to be, therefore, only two possible methods of adjusting chain tension. The first, and most obvious, is to arrange an adjustable idler wheel pressing against the chain. With the silent chain such a wheel has to gear with it, and be in contact with at least three teeth; wheels bearing on the back of this type of chain being quite unsuitable. If only the camshaft has to be driven by chain, such an idler wheel would be the only way of providing adjustment, and would be quite satisfactory. If, however, the magneto is to be driven by chain also, a second method for obtaining adjustment can be adopted by allowing the wheel of the magneto to take the place of the idler wheel, and making the magneto adjustable bodily. If there are two camshafts and a magneto, two triangular drives should be arranged, one adjusted by the magneto, the other by an idler. The fan or pump might possibly be arranged to be driven from the spindle of the latter.

"It would generally not be advisable to connect two camshafts and the crankshaft by a single chain, as it would be difficult to arrange an adjusting wheel, either magneto or idler, that would not leave too small an arc of contact for the chain on one or the other of the main wheels. If the disposition of the shafts made this possible, however, there is no objection to it.

"It may be objected that a triangular drive puts unnecessary loads on the bearings of one or the other of the driven shafts, according to the arrangement. This does not seem to have produced any trouble in any drive I have seen or heard of. Moreover, I would point out that any extra load of this sort, if it does occur, is likely to be much less severe than the sudden irregular loads, due to the whipping of a worn chain on a fixed center drive."

From the foregoing it is apparent that Renold's contention is that it is impossible to make a chain exactly accurate in length and that it is therefore essential to provide means for adjustment. Hill's view of the situation, which is exactly the reverse, is interesting, inasmuch as it means, virtually, standardization of the triangular drive.

"On the first question of accuracy in manufacture," says Hill, "it rather depends to what extent the manufacturing processes are carried by the chain maker as to what degree of accuracy can be obtained. It is, of course, quite true that the moment when a chain first forms a complete assembly of its constituent parts that it is not dead to reputed measure in its overall length, for the reason that the total tolerance, or al-

lowed error, is the average tolerance of each pitch multiplied by the total number of pitches in the chain. The tolerance in one pitch itself may be as little as .00025 inches, but the total tolerance in any chain of considerable length must, naturally, be perceptible, always remembering that the total is within reputed length. It is obvious, therefore, that the integral parts of a chain are made to a standard of accuracy higher than that accepted in good automobile practice.

"It remains, therefore, to consider whether a finished chain, as ordinarily understood, and as used in general engineering, can be refined in accuracy by further processes in order to render it serviceable to the special requirements of the automobile engineer. I maintain that it can, and such is the practice with my firm. . . .

"The wear that takes place in these 'running in' processes is essentially superficial in its character; the 'bedding down' is bound to take place, and in the very nature of things the process is fairly rapid.

"When it is finished the apparent wear ceases and the real wear, which is infinitely slow, begins. I say 'infinitely slow' for the reason that I have no knowledge of a chain showing any appreciable signs of wear if the drive has been properly designed and the chains suitably refined before being fitted to the engine, even after running 6,000 miles. . . .

"It must be borne in mind that dispositions of cam-shaft chain drives are numerous, and an argument for the adjustment of one may not be applicable to others. In certain forms of drives, as where two wheels only are employed, it has usually been set forth by prospective users as a fundamental that centers are to remain fixed. Far be it from me to deprecate adjustment of centers for chain drives generally, as I recognize their benefits in general practice, but in the type under consideration the complications necessitated by the introduction of adjustable centers is not warranted when my previous remarks are borne in mind as to refinement both by the chain and automobile manufacturer.

"Undoubtedly an adjustment is advisable if the chain is to go into the engine without being refined, but the principal use of such adjustment will obviously be to take up the sag caused by the initial bedding in. Thereafter there should be little need for its use.

"It stands to reason that to fit an adjustment on every engine for the sake of taking up the sag in its own individual chain is an unnecessarily expensive proceeding when all the chains can be separately run in to length on one adjustable jig specially made for the purpose. In another disposition of design employing one chain as a triangular drive over three wheels adjustment is essential because, in this case, a much longer chain must be used, and the wear is more rapid by reason of the smaller arc of contact between each

of the three wheels and the chain. Moreover, the provision of adjustment on this type of drive is comparatively simple.

"Again, adjustment is useful to decrease the flapping of the free portion of the chain due to the intermittent load of the camshaft and magneto. The necessity of designing for some specific pitch and an exact 2-1 ratio arbitrarily locates the camshaft center independently of any other consideration.

"From my own point of view, as a chain maker, therefore, I would summarize the present position by urging the necessity, on the part of automobile engineers, to regard the following points as essential:—

"(1) Acceptance of the experience of the chain maker in determining suitable widths and pitches.

"(2) Rigorous exactitude in the setting of the chain wheel centers.

"The reason for this latter should be obvious in the light of what has already been said. Any inaccuracy of chain wheel centers frustrates the object of the refining processes to which the chain has been subjected, and cannot possibly be corrected afterwards.

"If regard has been given to the above points, the purchaser of a car with chain-driven camshaft need have no fear but that this member of his engine will be silent and have a long life. It will, of course, be unnecessary to point out to engineers that it is only by accident that existing gear-driven camshafts can be converted to chain drive.

"In conclusion, there is one other point of great interest where chain drives are concerned, and for which some provision for adjustment should always be made. I refer to the question of end float in crankshaft, camshaft and magneto spindles. This is a question not for the chain maker but for the engine designer, and must be borne in mind, for it will be obvious that if wheels have the ability to float fore and aft on the line of their spindles, troubles of cutting of guide plates and mounting of teeth are likely to occur."

Springs That Prevent Hose Breaking.

For the reason that a certain amount of vibration is inherent in all automobile engines, rubber hose frequently is used in making water connections to eliminate the possibility of damage resulting to the comparatively delicate radiator. When such rubber hose has bends in it a simple way to prevent flattening and consequent breakage is to insert a brass coil spring extending several inches each side of the bend. Iron or steel wire never should be used for this purpose owing to its rusting proclivities.

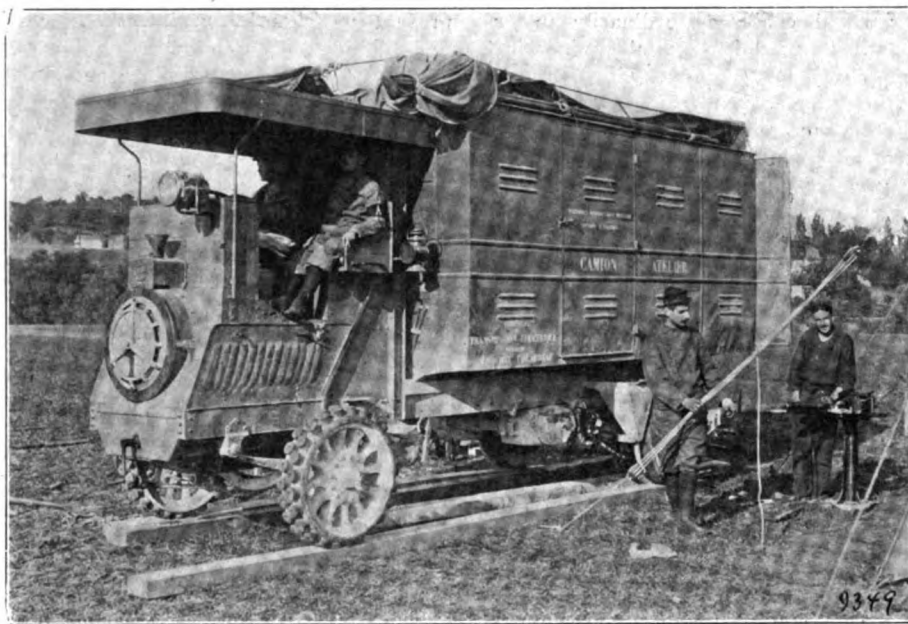
Soft Solder for the Small Jobs.

For the small soldering jobs about a car a soft solder that will fuse at a considerably lower temperature than the ordinary brand, may be made by adding three drops of mercury to each half ounce of solder.

MOTOR CARS FOR MILITARY USE

French Army Tries Out Two More of Them—One of Them an Aeroplane Repair Shop.

The recent addition of wireless outfits and aeroplanes to the armies of the various nations naturally has caused a demand for motor propelled vehicles, especially designed with a view to facilitating the work



TRAVELING REPAIR SHOP USED BY FRENCH ARMY

of these new weapons of offense and defense. Wireless apparatus has been used for some time in maneuvers, but the equipment usually was carried on the regular army wagons, sometimes on ordinary motor touring cars, and sometimes even on motorcycles. The great extension and almost universal use of the same during the recent French and German maneuvers, however, proved the inadequacy of present methods in handling the equipment, and with this idea in view Delahaye & Co. have brought out a special car solely for use as a wireless sending and receiving station. The car, which is shown in the accompanying illustration, carries a jointed steel mast, wire, instruments and a crew of four men.

The other picture shows the latest achievement in up-to-date warfare—the traveling aeroplane repair shop. This is a heavy, powerful truck, capable of carrying without difficulty a wrecked or damaged aeroplane on its top, fitted inside with a mass of drawers, boxes, etc., for spare parts, bolts, nuts and canvas, while a portable steel bench with vise also forms part of the equipment. The car was thoroughly tested in the great French army maneuvers part of this summer and is said to have rendered excellent service. On account of the heavy rains it had to be raised upon wooden beams to prevent its sinking into

the soft ground, with its wooden plug tire equipment.

Gives "Borrowed" Car as Security.

Not every "joy-rider" who is arrested for speeding succeeds in putting up the "borrowed" car as security with the police for his appearance and payment of the fine assessed against him. But that is just what Anthony Smith accomplished in Philadelphia, and as a result the police are very industriously looking for the owner of the

for \$300 and that he was "busted," but offered to go out and get the money, leaving the car at the police station until he came back with the fine. He never came back. Meanwhile the runabout is proving a white elephant on the hands of the authorities.

"Jiu-Jitsu" for Accident Victims.

The prevalence of accidents in motoring, in which the occupants of the car or pedestrians are "knocked unconscious," has brought out a suggestion from an adherent of the famous Japanese system of physical culture, "jiu-jitsu," which, if followed accurately, is claimed to restore to consciousness the most thoroughly "knocked out" person that ever walked the earth—providing he is not killed. The system is nothing more than the beating of a rapid and heavy tattoo with the bare knuckles upon the seventh vertebra, while the patient is lying face down upon the ground. The seventh vertebra is one inch below the line connecting the highest points of the shoulder blades. Its vibration causes a peculiar reflex action in the heart muscles and is said to be absolutely certain of success.

Not Responsible for Horses' Mischief.

While various courts in this country as well as abroad have held that damages caused by a horse or team, running away after being frightened by an automobile, may be laid at the door of the motorist, the New York Supreme Court, sitting at Catskill, last week declared in such a case there was "no cause of action." The opin-



FRANCE'S WIRELESS TELEGRAPH CAR IN FIELD USE

car, with a very small chance of ever seeing "hide or hair" of the ingenious Mr. Smith again. One of Philadelphia's motorcycle "cops" caught Smith going at high speed and promptly arrested him. When arraigned he was fined \$10, but confessed that he did not have a cent with him. He explained that he had just bought the car

ion was rendered in the case of Annie Covell, who sued Austin Newcombe for \$10,000 damages, caused by the death of her husband. In her bill of complaint the plaintiff stated that her husband met her death by being thrown from his wagon, the horse having taken fright at the passing of the defendant's automobile.



997,073. Friction Clutch. Albert Master, Park Ridge, Ill. Filed Jan. 9, 1911. Serial No. 601,651.

1. In a friction clutch, the combination with a pair of shafts, of a hub rigidly connected to one of said shafts and including a cylindrical clutch member, a spring clutch ring surrounding said cylindrical clutch member, said ring being provided with a pair of spaced eyes having coaxial bores of different diameters, and a lug having a bore directed toward the space between said eyes, a collar connected to the other shaft and lying against the aforesaid hub, said clutch ring and collar having interlocking means, an operating lever having a pair of journals of different diameters mounted in the aforesaid eye bores and an integral eccentric lying between said eyes, a bolt having at one end an eye concentric with said eccentric and co-operating at its other end with the said lug, and means to operate said lever.

997,136. Device for Supplying Oil to Internal-Combustion Engines. Philip Devereux Johnston, Cold Spring, N. Y., assignor to American Oil Engine Company, a Corporation of New York. Filed July 7, 1906. Serial No. 325,113.

1. In an internal combustion engine, the improved controlling means for delivering

the fuel, which comprise a pump, a controlling valve therefor, the said valve being a slide valve, and an exit port for the valve, the said port being restricted at the end adjacent to the valve so as to provide a longitudinal passage.

997,151. Spring Wheel. Elton A. Nelson, Chicago, Ill. Filed Feb. 7, 1910. Serial No. 542,555.

1. A wheel comprising in combination a hub, a felly, and cushioning means between said hub and felly comprising spring elements provided with coils between said hub and felly, extending in the plane of the wheel and out of contact with said hub and felly while yielding to normal shock but contacting therewith and bridging the space therebetween in the event of overload or excessive shock.

997,169. Carburetter. Alexander Winton and Harold B. Anderson, Cleveland, Ohio, assignors to The Winton Motor Carriage Company, Cleveland, Ohio. Filed Mar. 13, 1907. Serial No. 362,159.

1. A carburetter comprising an air passage provided with a fluid inlet, means for maintaining a body of oil in a plane above the said inlet by gravity flow therethrough for slowly moving volumes of air, said inlet so restricted as to require suction of fluid therethrough for rapidly moving volumes of air, and a movable deflector adjacent the body of oil and normally closing the air passage but opened by the passage of air through the said passage for the purpose described.

997,176. Ratchet Grease Cup. George W. Bowen, Auburn, N. Y. Filed Aug. 26, 1910. Serial No. 579,093.

1. A grease cup comprising a base, a cap threading on the base and having an imperforate head, a disk fixed in the cap and having an opening therethrough, opposing surfaces of the head of the cap and the disk forming opposite sides of a chamber in the cap, and mechanism for restraining turning of the cap including engaging means fixed within the cap, a second engaging means composed of a disk and stem, the disk being supported within the chamber directly on the first named disk and coacting with the engaging means within the cap, said second named disk being formed of substantially the same diameter as the chamber, and the stem being supported by the disk of the second mentioned engaging means and being connected to the base and held thereby from turning movement with the cap, the stem being passed through the opening of the first named disk and spaced apart from the inclosing wall of said opening, and yielding means for effecting the coaction of said engaging means, substantially as described.

997,190. Internal Combustion Engine. George Roy Harvey, Hamilton, Ontario, Canada. Filed Feb. 6, 1911. Serial No. 606,944.

1. In an internal combustion engine, a frame, a crank shaft journaled to said frame, a plurality of cylinders rigidly supported from said frame and arranged parallelly in a common plane transversely of and in right angular relation to said crank shaft, said cylinders being placed in balanced arrangement laterally to each side of said crank shaft, pistons operating in unison within said cylinder, piston rods rigid with said pistons, a pair of parallelly arranged distance bars rigidly connected to

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the outer ends of said piston rods, and a block slidably arranged between said pair of distance bars and rotatably connected to the crank pin of said crank shaft.

997,195. Two Cycle Gas Engine. Charles Francis Jenkins, Washington, D. C. Filed Nov. 18, 1910. Serial No. 593,028.

1. In a gas engine, a cylinder, a piston reciprocating therein, a longitudinal passage located outside of the cylinder but within the water-jacket space of said cylinder, the upper end of the passage being in open communication with the upper end of said cylinder, the lower end adapted to be opened and closed by the reciprocation of the piston, and a spark-plug located at the lower or ingress end of the passage.

997,212. Vulcanizing Mold for Rubber Tires. Anton M. Scheurle, Kiel, and Joseph M. Stine, Milwaukee, Wis. Filed Nov. 7, 1910. Serial No. 590,972.

1. In combination, a vulcanizing mold-box and a clamp therefor, said mold-box having a recess in one side adapted to receive a tire, and said clamp comprising three elements pivoted together, to wit:—a base-member at one end, a yoke-member in the middle and a catch-member at the other end, and means on said yoke-member for pressing the tire into said recess; said box being provided on each side with a longitudinally extending engaging-surface, said base-member having a coasting face adapted to engage in a longitudinally slidable manner with one of said engaging surfaces, and said catch-member being provided with a coasting-surface adapted to engage with said engaging-surface on the other side of said box.

997,223. Spring Tire. Joseph A. Waters, Washington, D. C., assignor of one-half to John O. Waters, Washington, D. C. Filed Sept. 8, 1910. Serial No. 581,052.

1. In a spring tire, the combination with a wheel, of abutments secured to the periphery of the wheel and having curved inner surfaces, flanged rings secured to the wheel outside the abutments whereby spaces are left between the abutment and rings, a shoe having elastic sides movably mounted in the said spaces between the abutments and the flanged rings, and springs located between the abutments and having upper portions in contact with and supporting said shoe, the lower portions of said springs being in contact with the abutments midway between the said inner surfaces thereof whereby the sides of the springs are normally out of touch with the abutments.

997,255. Carburetter. Lars Anderson, Chicago, Ill. Original application filed Oct. 15, 1909, Serial No. 522,710. Divided and this application filed May 21, 1910. Serial No. 562,619.

1. The combination of a float chamber having a bottom inlet; a valve controlling the entrance of fluid into said chamber through said inlet; a float within said chamber; a support in the lower part of said chamber; two parallel links connecting the float to the support for rectilinear movement; and a connection between one of the links and the valve for operating the latter.

997,232. Carburetter. Fredson E. Bowers, New Haven, Conn., assignor, by mesne assignments, to The Gilbert Manufacturing Co., New Haven, Conn., a Corporation. Filed Mar. 30, 1908. Serial No. 424,258.

1. In a carburetter, the combination with means for supplying a fixed amount of

combustible vapor, of a supplemental air-valve operable by suction, a mechanical regulator connected with the said valve for the mechanical operation thereof, and means for driving the said regulator from one of the running parts of the engine supplied with vapor by the carburetter.

997,253. Means for Controlling Reversible Internal Combustion Engines. Knut Jonas Elias Hesselman, Sickla, Sweden. Filed Apr. 8, 1908. Serial No. 425,857.

1. In an internal combustion engine, the combination with a cylinder, of fuel supplying means therefor, fuel introducing means, and operating means adapted to operating means adapted to operate said supplying

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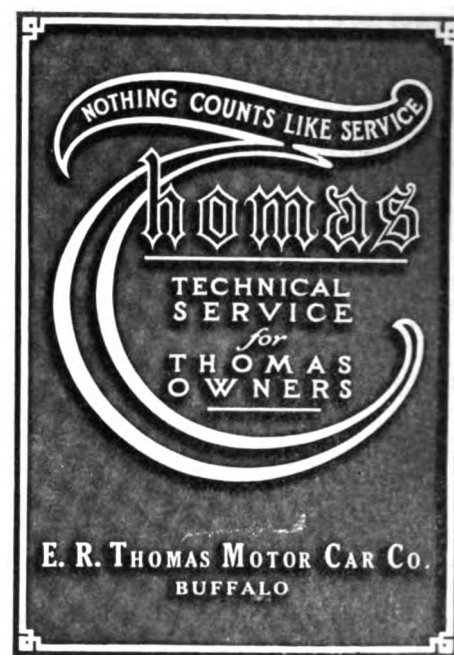
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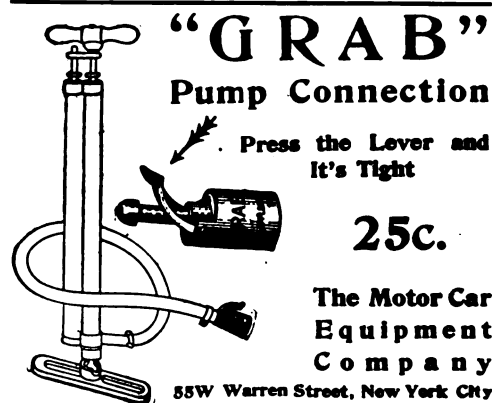
and introducing means for forward and rearward running and to throw said fuel supplying means out of action previous to said fuel introducing means in changing the operation of said operating means for reverse running.



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THE MOTOR WORLD

Vol. XXIX.

New York, U. S. A., Thursday, November 30, 1911.

No. 10

STOCKHOLDER ACTS AGAINST MAIS

Applies for Receiver for Indianapolis Truck Company—Pique the Cause, Says President Brown.

Notwithstanding its excellent prospects and apparently believing that the company was not progressing fast enough, Harold S. Bloch, of Wheeling, W. Va., a stockholder, on Wednesday of last week filed an application with the Indiana Superior Court asking that a receiver be appointed for the Mais Motor Truck Co., of Indianapolis.

Bloch alleges that the corporation is insolvent, and that it is unable to pay its indebtedness, which, he says, amounts to \$144,000. He complains also that the Mais company had an option on the building and real estate, but that the option expired because the defendant corporation failed to pay \$5,000 on or before November 21, 1911.

The plaintiff avers that the company has on hand a large amount of material for the manufacture of commercial motor trucks. He says he believes that it would be to the best interests of the stockholders and the company to have a receiver take charge of the property and assets of the company and operate it under the order of the court.

In discussing the time for the hearing before Judge Collier, John W. Holtzman, attorney for the Mais company, said plans were under way to clear up the present difficulties. Will H. Brown, president of the company, told the court that the company would complete six motor trucks this week and it was agreed that the company should be permitted to finish these cars pending the hearing on the petition, for which no date has been set.

Brown, when asked about Bloch's suit for receiver, said that there was no occasion for such action; that the company has assets, if properly handled, to pay all of its indebtedness; which assets are about

\$130,000 in excess of its liabilities, and the company is doing a good business and its prospects are good, he said.

Brown said, however, that the company needed more capital with which to do the large volume of business which was coming to it, and that negotiations were pending for financing the company in accordance with its present needs and prospects.

"Mr. Bloch is not a creditor, except as a stockholder, and is fully familiar with the negotiations that are now pending," said he. "It appears to me that his suit is brought out of pique and not for the purpose of benefiting either the stockholders or creditors. In the event that the court appoints a receiver, the only people that will suffer will be the stockholders. Mr. Bloch will suffer to the extent of his holdings, which are small."

Importers of Italian Car Go Under.

A petition in involuntary bankruptcy has been filed against the Zust Motor Co., of 235 West 50th street, New York City, by the following creditors: Victor P. Pisani, of Brooklyn, \$500; John A. Kent, New York, \$250, and Isaac R. Fiegenow, New York, \$17. Victor P. Pisani was formerly secretary and Jacob Weidman president. For some time past business has been dull and the officers of the company have been trying to raise \$60,000 to increase the business and to interest new parties to become active in it. The assets of the company, which handles the Italian Zusta car, are placed at \$10,000, while the liabilities are \$25,000. Judge Holt, on Tuesday, appointed Walter E. Coe receiver.

Grubb Sells His Interests to Fulton.

F. W. Grubb, at one time manager of the Excelsior Supply Co., of Chicago, and more recently a member of the Fulton-Grubb Co., has disposed of his holdings to his associate, J. W. Fulton, who will continue the business as factory sales agent at 1146 Michigan avenue, Chicago. Grubb has joined the Excelsior General Supplies Co. of that city, being influenced to make the change largely by the fact that his new position will require less travel.

TO SOLVE ALL INSURANCE PROBLEMS

Missouri Congressman Engages in the Work, Using Government Stationery—Lincoln's Picture Also Employed.

If only half of the things which the Lincoln National Holding Corporation of America promises to accomplish actually are put into operation, there seems reason to believe that most of the automobile trade's insurance problems will be solved and that many of the insurance companies now enjoying a profitable business through writing fire, life, accident, burglary, theft, earthquake, casualty, liability, automobile, marine and all the other kinds of insurance, will have to seek other fields of endeavor. As, however, at last reports, the corporation still was looking for someone with capital to open an office in New York City, the managing officials of the Equitable, Prudential, Mutual, Travelers, Aetna and Metropolitan insurance companies need not, as yet, scan the "Help Wanted" columns of the daily press in search of new jobs.

The Lincoln National Holding Corporation of America has an office in Washington, and is composed of patriotic men—as is indicated by a picture of Abraham Lincoln which adorns the front cover of its prospectus—its officers being: President, the Honorable Harry M. Coudrey; vice-president, Frank R. Coudrey; secretary, Henry A. Schmid; medical director, Dr. W. P. C. Hazen; superintendent of loans, M. L. Welfley; superintendent of bankers' department, E. L. Franzoni. Its president was a member from Missouri of the Sixtieth and Sixty-first Congress of the United States, and it is he who is the moving spirit behind the enterprise. The insurance company's prospectus specially directs attention to a biographical sketch of Mr. Coudrey appearing in the Congressional Directory, which sketch is reproduced. According to this prospectus the corporation was created for the purpose

of "operating and consolidating profitable insurance companies under one management," and "will have on its Board of Directors capable financiers, prominent business and insurance men of world-wide reputation, whose names will add weight and solidity to a corporation which depends for its existence upon the confidence of its stockholders." It also is stated that "the idea of a clearing house for insurance in Europe has proven most profitable, where companies like the 'Lincoln National' have been operating more than 200 years."

Despite these high-sounding phrases, however, the company, as late as two weeks ago, was looking for a "capable executive, who could invest a sum of money, as manager of its proposed New York office." The advertisement, which appeared in the "Help Wanted" column of a New York daily paper, did not say that. It stated merely that a young lady was wanted for light office work; application to be sent by mail. But when a young lady did answer and later called at the Hotel Pierpont she was told by Mr. Coudrey, whose invitation to call was mailed in a Congressional envelope, that he was desirous of obtaining the name and address of "someone with capital" who could act as New York manager. She was duly impressed with the great resources of the proposed company and with the staggering list of ninety-four different kinds of insurance which the various subsidiary companies are expected to handle. This list takes particular cognizance of the automobile and includes Automobile, Auto-theft, Auto-Public (whatever that may be!), Automobiles under transportation, Property damage by automobile, Automobile bail bonds, Court bail bonds, Automobile collision and Explosion insurance.

Proceeding along the usual line of promoter's talk the Congressman then called attention to the "Millions that are in it," citing the prospectus as to the "authorized" capital of \$125,000, and the "ultimate capital and surplus" of \$15,000,000. He declared that he intends to get a great deal of business by compelling each agent to buy stock in the holding corporation—a not exactly unique idea—and punctuated his remarks by words of wisdom to the effect that "the success of an insurance company depends largely upon the agency force." "When we make money for the agent he will increase the business of the company," he declared. "We desire to distribute our stock among thousands of stockholders who will influence business to the companies held by the Lincoln Holding Corporation."

Hupp Takes up Trucks and \$5,000 Coach.

Despite its comparatively recent production of the R. C. H. gasoline car, the Hupp Corporation, of Detroit, does not mean to lessen its interest in the electric vehicle field. For not only has it just announced an electric truck, but it also has

made ready unlooked-for additions to its line of Hupp-Yeats electric cars. It will no longer confine most of its attention to the \$1,750 model; instead it will have cars listing at \$2,500, \$3,000, \$3,500, \$4,000, \$4,500 and \$5,000, all of which will be coaches de luxe. Although they will employ the same chassis as the \$1,750 model, it is promised the coach work, finish, upholstery and appointments will "bring to mind the State Processions of the Grand Monarque."

Changes Among Prominent Tradesmen.

F. R. Bump has been appointed assistant general manager of the Hupp Corporation of Detroit, and not merely assistant sales manager. His duties comprise the general direction of the company's sales, service and advertising departments.

C. F. Garaghty has been appointed assistant to W. E. Metzger, president of the Metzger Motor Car Co., of Detroit. Garaghty was at one time prominently in the farm implement and machinery business, but more recently served as assistant treasurer of the E-M-F company.

E. W. Arbogast, formerly general manager of the De Tamble Motor Co., of Anderson, Ind., has been appointed manager of the Chicago factory branch of the Schacht Motor Car Co. Before going to the De Tamble company he was for many years identified with several Chicago agencies.

After having served for a number of years in charge of the engineering department of the Simplex Automobile Co., New York City, Robert F. Russel has been appointed assistant engineer of the automobile department of the American Locomotive Co. He will be associated with Montague H. Roberts, who is the chief engineer.

Albert F. Mais, formerly of the Mais Motor Truck Co., of Indianapolis, has joined the staff of the Studebaker Corporation, of Detroit, in the capacity of consulting engineer. Mais has had experience with the Daimler, Benz and other European concerns, and his present connection with Studebaker is taken to presage the early production of a commercial vehicle by that big corporation.

C. S. DeLany, for several years past factory manager for the Stevens-Duryea Co., at Chicopee Falls, Mass., has been made production manager and factory superintendent of the Matheson Automobile Co., of Wilkes-Barre, Pa. DeLany's previous experience embraces connection with the Cramp shipbuilding plant at Philadelphia, and later with the American Ordnance Co. and the Remington Arms Co.

V. M. Palmer, at one time superintendent and chief engineer of the Selden Motor Vehicle Co., of Rochester, N. Y., and latterly chief engineer and manager of the automobile department of the Sheldon Axle Co., of Wilkes-Barre, Pa., has re-

signed that position to join the B. F. Board Motor Truck Co., of Alexandria, Va., of which he will become chief engineer and factory manager. He has also acquired a financial interest in the Board company.

Dealers Want \$30,000 for Tardy Deliveries.

White, Ware & Leatherbee, automobile dealers at 895 Boylston street, Boston, have filed suit for \$30,000 in the Massachusetts Superior Court against the Louis J. Bergdoll Motor Company of Philadelphia for damages caused by alleged failure of the defendants to deliver cars on time, and the loss of sales that resulted. As a step in the litigation, the court issued a temporary injunction against the National Shawmut Bank and the Boston and Albany railroad, restraining them from returning two cars to the defendant company.

Pittsburg to Repeat Two Weeks' Show.

There will not be two automobile shows in Pittsburg, Pa., this year. The differences which caused the annual two weeks' exhibition of the Automobile Dealers' Association of Pittsburg, Inc., to take place in April after the "insurgents" held one in March having been adjusted, the 1912 display will be under the auspices of the association. Duquesne Gardens will be the scene, the week of January 27—February 3 being devoted to pleasure vehicles, and the week following to commercial vehicles.

Kiel Placed on the Automobile Map.

Kiel, a town in Manitowoc county, Wis., is a little bit of a place, but Frederick Thiessen, Philip Juenheimer and William Ducker believe it is big enough to support an automobile factory of at least modest proportions. Accordingly, they have organized and incorporated the Kiel Motor Car Co., with capital stock of \$14,000, and it is not improbable that the citizens of the town will supply the factory building necessary to keep the town on the automobile map.

Fretz Trustee for Pennsylvania Auto Motor.

E. S. Fretz, of the Light Mfg. & Foundry Co., has been elected trustee in bankruptcy for the Pennsylvania Auto Motor Co. of Bryn Mawr, Pa. While it was first thought that the Pennsylvania company would be re-organized, its future is shrouded in considerable doubt and it is probable that if a favorable offer is obtained, the property ultimately will be disposed of.

Havers Increases Capital; Enlarges Output.

The Havers Motor Car Co., of Port Huron, Mich., which makes the Havers "Six" has increased its capital stock from \$60,000 to \$200,000. It is stated that most of the new stock was taken by the old stockholders of the company and that the new capital will permit the company to increase its output for 1912 from 500 to 1,000 cars.

NEW MEN ENTER MITCHELL COMPANY

**Directorate Enlarged to Admit Six Bankers
—Flotation of Note Issue Reveals
Big Assets and Earnings.**

Backed by verified statements showing an average annual profit of 820,130.81 during the last three and one-half years, the Mitchell-Lewis Motor Co., of Racine, Wis., has successfully floated an issue of \$2,500,000 6 per cent. notes, the unsold portion being offered for public subscription through White, Weld & Co., and George H. Burr & Co., of New York and Chicago, at 100 and 98½ and interest, the latter being the quotation on the long term notes.

Of the issue, \$750,000 matures August 1, 1912, and the remainder, \$1,750,000, one year later, the interest being payable semi-annually. The notes are redeemable at 101 on 60 days' notice. The Continental and Commercial Trust and Savings Bank of Chicago is the trustee.

Preceding the note issue, the Mitchell-Lewis company amended its charter increasing the number of directors from 10 to 16, the new men who then entered the directorate being George H. Burr and Noble Craindall, of Burr & Co.; Ray Morris and V. McM. Rutter, of White, Weld & Co.; Herman Waldeck, vice-president of the Continental and Commercial National Bank, of Chicago, and Joseph Winterbotham, Jr., who was elected chairman of the executive committee. William Mitchell Lewis remains president of the company and W. T. Lewis chairman of the board of directors.

With such items as good will, patents, etc., excluded, the report of the accountants shows the financial condition of the Mitchell-Lewis company as of October 1, 1911, to be as follows:

Real Estate, Plant and Equipment	\$2,674,066.08
Investments	199,850.00
Current Assets (Cash Accounts and Bills Receivable, and Merchandise Inventory) . . .	4,599,498.01
	\$7,473,414.09
Current Liabilities	\$2,944,046.74

The proceeds of the note issue will be sufficient to retire all the bills payable, leaving as the only obligations current operating accounts and customers' advance deposits on cars ordered.

For the three and one-half year period ended June 30, 1911, the net profits of the company amounted to \$2,870,457.83, which works out at \$820,130.81 per year. The plant at Racine has an annual capacity of 30,000 farm wagons—which business was established in 1834—and 8,000 automobiles. Since the manufacture of the latter was undertaken in 1904, the statement accompanying the note flotation, shows that the number of automobiles sold was as fol-

lows: 1904, 82 cars; 1905, 315 cars; 1906, 666 cars; 1907, 1,377 cars; 1908, 2,166 cars; 1909, 2,946 cars; 1910, 5,614 cars; 1911 to November 1st, 4,049 cars.

On November 15, 1911, the company had orders for 9,500 cars for domestic and foreign delivery, which justifies the proposed 1912 production of about 5,000 to 6,000 cars.

The company's capital stock is \$10,000,000, equally divided into common and preferred, the latter being 7 per cent. shares.

The property, which is free of mortgages, loans or other incumbrances, covers a floor space of 1,270,000 square feet, the real estate on which the buildings stand being in excess of 79 acres. What the item of insurance alone means to such big enterprises also is revealed, the Mitchell-Lewis company carrying insurance amounting to \$5,389,170.

More Actions Against Morris-Grinberg.

Judgments for \$2,436 in favor of the Canfield Rubber Co., of Bridgeport, Conn., were entered on Tuesday last, 28th inst., against the Hayes Rubber Co. the Manhattan Storage Co. and Adolph Morris and David Grinberg, of New York, the individuals who comprise the companies, both of which have been thrown into bankruptcy. It is understood that opposition to the bankruptcy petitions will be interposed and that sensational disclosures are not unlikely. In reporting the filing of the petition against the Manhattan Storage Co., it was stated that the chief petitioning creditor was the Lovell-McConnell Mfg. Co., when as a matter of fact the petitioner was the Klaxon Company of New York, the former selling agents for the Lovell-McConnell company. The latter has lived up to its reputation by resolutely refusing to permit its Klaxon horns to be handled by such people as Morris and Grinberg or any of their several enterprises.

Motion Argued in Lozier-Williams Case.

Argument of the Lozier Motor Co.'s motion to require Fletcher R. Williams to file a bill of particulars in the suit he brought for \$500,000 because of the failure of the Lozier company to consummate an alleged agreement for the sale of a certain share of its stock, was heard in Part I of the New York Supreme Court on Friday last, but judgment was reserved. Whether or not the motion is granted it probably will be two months or more before the case actually comes to trial and its merits are inquired into.

Fire Destroys Big New York Garage.

Fire occurring late on Friday night, 24th inst., in the garage of the Sidney B. Bowman Co., dealers in Apperson and Clement-Bayard cars, at 225-231 West 49th street New York City destroyed 25 automobiles and gutted the building. The damage is estimated at \$40,000, fully covered by insurance.

OPPORTUNITIES IN SOUTH AMERICA

**They Exist and Are Worth Embracing,
Declares Returned Salesman—Flouts
Statements of a Recent Critic.**

William H. Brouwer, who recently returned to this country after spending more than a year selling American machines in South America, is one of those who does not believe that that market holds particularly great difficulties for the American automobile manufacturer. On the contrary, he considers it a most promising market and one well worth cultivating, but he believes that the best results will be obtained only by the establishment of factory branches in either Buenos Aires or Rio de Janeiro.

Two American manufacturers and one French manufacturer already have grasped the fact and established depots in the foreign cities. Practically all other automobiles which are sold in the South American markets are handled by import houses which deal with an almost endless variety of wares and naturally do not devote particular effort to the sale of automobiles. To the best of Brouwer's knowledge, there is but one exclusive automobile agency in Buenos Aires.

Contrary to the opinion of the New Yorker who only recently visited South America and who was so discouraged by what he conceived to be the expensive outlook that he returned without unloading from the steamer the several cars which he took with him, Brouwer does not believe that either the cost of living or the cost of doing business is very much greater than is the cost in this country, nor does he agree with the returned New Yorker's statement that there is no middle class in South America, or that the population is divided merely into the very rich and the very poor. Also, he flouts the notion that in order to make business progress it is necessary to become a social lion and acquire a reputation as a champagne buyer and spender generally.

"When the New Yorker returned from his unsuccessful quest and gave the Motor World several items of the expenses to which he had been subjected in South America," said Brouwer, in speaking of the matter, "he neglected to explain that when he said dollars, he meant South American dollars—or pesos—which are worth 42½ cents in United States gold, which explanation would have placed quite a different face on the situation. I maintain, and I was in South America long enough to know, that it is possible to live at about the same rate that it is possible to live in the United States. It is possible to obtain for \$5 or \$6 per day as good hotel accommodations as any man can desire. Brazil and Argentina are both very

prosperous and while there are some very rich and some very poor people in both countries, there is a very numerous middle class just as there is in the United States and everywhere else. There are innumerable small store-keepers and large store-keepers, and while the small farmer may not be so numerous, the equivalent of the western ranch owner is very much a factor in South American industry.

"One of the mistakes made by many salesmen visiting South America, and, for that matter, other countries, is to seek information from the men handling similar lines of goods. As a result most of them receive poor comfort and are quickly discouraged. For how many merchants in the United States are likely to invite competition by painting for the benefit of would-be rivals rose-hued pictures of the conditions of the particular business in which they are engaged. Also, many salesmen appear to believe that they can fill their order books to the bursting point in the course of a two or three months and, doubtless, their employers at home are possessed of the same opinion. The Europeans, who cultivate the South American market, proceed differently. They devote time and study to the subject and if they have obtained substantial returns within a twelve month they count themselves fortunate.

"It is useless for any automobile manufacturer to attempt to enter South America with the expectation that big orders will immediately result. If any man is able to sell 50 popular priced cars the first year, he is doing well. It is not until after the first year that large results are likely to become apparent, or that business will be very much more than doubled; and such manufacturers must be prepared to spend about \$2,000 per month for the maintenance of their own depots, which cost, I believe, will cover substantially everything, and which, in the course of time, will pay good returns on the investment. Also, the manufacturer must not make the mistake that has been made by a number of manufacturers, of asking the South American people two or three times the price asked for the same car in America; and whoever manages an American branch in the Southern countries must be able to speak the Spanish or Portuguese languages, and his mechanics and other employees also should be competent to do the same thing.

"It is quite true that, as stated by the unsuccessful American whom the Motor World recently interviewed, men who occupy positions of importance must dress well and must not engage in manual labor, which is to say that it is considered unseemly and undignified for any man to drive his own car, or to be seen in his shirt sleeves working over a car; but it is untrue that the South Americans have a champagne appetite, and that it is a part of a salesman's duty to wet it copiously.

As a matter of fact, most of the drinking down there is done by American and Englishmen.

"The long and short of the whole matter is that Argentina and Brazil offer splendid opportunities and that the only way to make the most of them is to appreciate the fact that South Americans do not differ radically from North Americans and that the same methods and about the same costs will achieve results there as here. 'Absent treatment,' doubled or tripled prices, and dealing with them through import houses, who sell thousands of wares and who will not even soil, and thereby depreciate an automobile—will not bring big results in South America any more than they will bring them in the United States. The American manufacturers in other lines who have become factors in the markets are those who have established their own houses, and who carry their own stocks and control their own employees on the ground."

"Little Six" Added to Locomobile Line.

Following the trend of the trade, the Locomobile Company of America has placed on the market a six-cylinder car which is to be a "little brother" to the Locomobile 48 horsepower "six." The newcomer is styled the "little six," and is similar in design to the larger machine, but its dimensions are smaller throughout. The wheelbase is 128 inches—as against 135 for the "big six"—and the motor has cylinders of $4\frac{1}{4}$ inch bore and 5 inch stroke, is rated at 38 horsepower, but it is claimed to turn up 60 horsepower. Characteristic Locomobile features embodied in the "little six" are the manganese bronze crankcase, four-speed selective transmission, multiple-disk clutch, high-tension ignition, three-quarter elliptic springs and ten inch upholstery. Either a five-passenger touring body or a four-passenger torpedo body may be had, the price being the same in either case, \$4,200. The regular equipment includes top and demountable rims for all four wheels.

Warren Adds a Self-Starting Model.

The Warren Motor Car Co., of Detroit, Mich., has brought out another model on its well-known 30-horsepower chassis which is styled model "30-K." What is more to the point, however, is that the new car, which is an addition to the line as previously announced, will sell at \$1,300 fully equipped and the "fully equipped" in this case means not only a mohair top, a windshield and sundry other, "extras" including acetylene gas tanks and lights, tonneau fittings, pump, jack and tools, but an engine starter as well. This is the first time that a five-passenger touring car so equipped ever has been offered at so tempting low a price. In general design and construction the new car bears marked resemblance to the other members of the Warren "30" family; as a matter of fact, ex-

cept for a few minor detail refinements, the chassis is identical. The same four-cylinder, $4 \times 4\frac{1}{4}$ -inch block motor is used and power is transmitted through a cone clutch and three speed selective change gear mechanism as in the other cars. Ignition and lubrication are carried on in the same way as in the previously announced new models, the former being by Bosch high tension magneto and the latter by constant level splash.

Regal Enters Commercial Car Field.

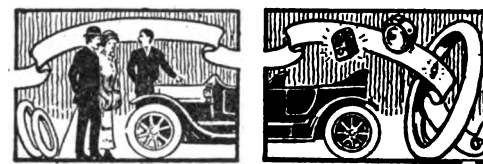
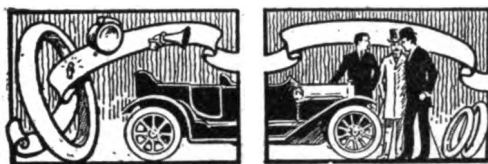
Having the equipment and experience gained in the manufacture of pleasure vehicles, the Regal Motor Car Co., of Detroit, Mich., is expanding its line of production to include commercial vehicles. The entrance of the company into this field is marked by the disclosing of two models, one a light express delivery car at \$1,000 and the other being of the enclosed delivery type and selling at \$1,050. In these vehicles the mistake of trying to adapt a purely pleasure car chassis to heavy trucking service has been avoided and the vehicles are designed for light, high-speed service which, from a mechanical aspect, resembles the requirements of the pleasure car. Effort has been made to combine a moderate first cost with a simple, sturdy construction that assures years of usefulness at a low maintenance cost. The new vehicles in the future will be given a prominent place in the Regal line and will be available to Regal agents throughout the country.

General Cutting Dead at Ripe Age.

General John Tyler Cutting, until April last a co-partner in the Oldsmobile Co. of New York, when he became a merely nominal vice-president of the corporation of the same name, died at Toronto, Can., on Friday last, 24th inst. His funeral was held at Westport, N. Y., where he made his home since his withdrawal from active business. Gen. Cutting was a veteran of the civil war, a member of the National Guard, in which he attained the rank of brigadier-general, and was elected to Congress in 1891. For many years he was one of the best known figures in the New York retail automobile trade and, despite his ripe old age, he served several terms as president of the New York Automobile Trade Association.

Crankshafts Must Pay 45 Per Cent. Duty.

That steel crankshafts cannot be imported into this country under the classification of forgings, is the decision of the Board of Appraisers of the New York Custom House. Peter A. Frasse & Co. imported a number of crankshafts and listed them under the head of "forgings," but the Custom House authorities exacted duty of 45 per cent. ad valorem, under the classification "manufactures of metal." The appeal of the importers against this decision was denied by the Board of Appraisers on Thursday last.



The Lincoln Motor & Machine Co. has opened a garage in Merrill, Wis.

The Havers Sales Co. has been organized in Milwaukee, Wis., to handle the Havers line of cars.

John M. Roberts is erecting a brick and concrete garage at 213 Park avenue, Utica, N. Y. It will cost \$5,000.

E. C. T. Miller is erecting a brick garage at 3738 Euclid avenue, Cleveland, Ohio. It will cost, when complete, \$10,000.

C. L. Perrin has opened a salesroom on West Pico street, Los Angeles, Cal., where he will handle the Michigan line of cars.

F. W. Burgers has opened salesrooms at 409 Golden Gate avenue, San Francisco, Cal., where he will display Batavia tires.

Fred Chadsey and William Chadsey have formed the Chadsey Mercantile Co., at Cherokee, Kan., and will handle Cole cars.

Hamblin & Volts have added a salesroom to their garage and repair shop in Washtucna, Wash. They will handle Reo cars.

The Oakland Motor Co., on Saturday last, opened its new branch at 1600 Broadway, New York City, with R. R. Hall as manager.

T. H. Sears and John Wilson are building a garage at Whitewright, Tex. It will be 50 x 100 feet and will cost, when complete, \$4,000.

The Penn Auto Co., 515 Mulberry street, Scranton, Pa., has changed its name to Scranton Penn Auto Co. The company handles the Cole line.

J. T. Mose and G. N. Lewis, of Kendrick, Idaho, have opened a garage and salesroom in that town. They have the Reo agency for several counties.

D. A. Blakeslee and F. C. Woodruff are building a three story brick garage at 213 Crown street, New Haven, Conn. It will cost, when complete, \$42,000.

Thomas Swearingen is erecting a two-story brick and concrete garage at 4727 Troost avenue, Kansas City, Mo. It will cost, when complete, \$18,000.

C. F. Cole, who handled Cole cars in Canton, Ohio, has removed to Denver, Colo., where he will become State distributor for the same line of cars.

Under the style Stahl & Stone, a new firm has been formed in Topeka, Kan., with headquarters at 928 Kansas avenue. Cole cars will be dealt in exclusively.

H. Cunningham, of Tampa, Fla., has purchased half an interest in the Kissimmee

Auto Co., in the Florida town of that name. The company handles Hudson cars.

The Moscow Automobile Co. has been formed in the Idaho town of that name, with Harry K. Moore as the moving spirit. The new concern will sell Cole "30" cars.

A. W. Loeffler, member of the Loeffler Brothers Auto Co., Des Moines, Ia., has sold his interest to F. J. Walker, who brings with him the agency for Nyberg cars.

A. A. Albright has purchased the Overland Garage, at Clinton, Ia., hitherto conducted by Dr. R. E. Gearhart. He will add a repair shop and establish a renting service.

Still another garage is being added to the already large number on Farnam street, Omaha, Neb. C. W. Downs is building it at the corner of Fortieth street, at a cost of \$25,000.

The Dillon Auto Co., which was organized on October 1, 1909, at Davenport, Ia., has been dissolved by a vote of the stockholders. Edward Dillon was president of the concern.

The M. R. Cheesman Co. has been formed in Salt Lake City, Utah, for the purpose of handling automobiles and supplies. It has the State representation for the Ohio car.

The Breen Motor Co., Winnipeg (Man.) agent for Cole cars, has left its old quarters at 151 Portage avenue. Its new salesrooms are at the corner of Broadway and Sherbrooks street, and include a complete service station.

The Velie Motor Vehicle Co., of Moline, Ill., has absorbed the Velie Motor Car Co. of Chicago, and will operate it as a factory branch. Morton H. Luce will continue to act as manager.

The Robert Wiley Auto Co. is building a large modern garage at the corner of Wealthy avenue and Charles street, Grand Rapids, Mich., where Winton and R. C. H. cars will be displayed.

A petition in voluntary bankruptcy has been filed by the Missouri Valley Automobile Co., 1114 East 15th street, Kansas City, Mo. The liabilities are placed at \$23,792.40 and the assets at \$16,876.34.

H. W. Alexander, of Penacook, N. H., has formed a partnership with H. A. Gardner under the style Concord Auto Sales Co., with salesrooms at Concord, N. H. They will distribute Cole cars.

Lundstrom Brothers have moved into more commodious quarters at 212 Seventh

street, Rockford, Ill., their old garage at 518 in the same street having been found too small for their growing needs.

The Stewart American Motor Car Co. is the style of a new concern which has commenced business at 213 West Fifth street, Waterloo, Ia. As the name indicates, American underslung cars will be handled.

The Goodyear Tire & Rubber Co. has moved its St. Louis (Mo.) branch from Olive street to new quarters on Locust street, near Nineteenth. The new store is said to be the most complete tire establishment in the Southwest.

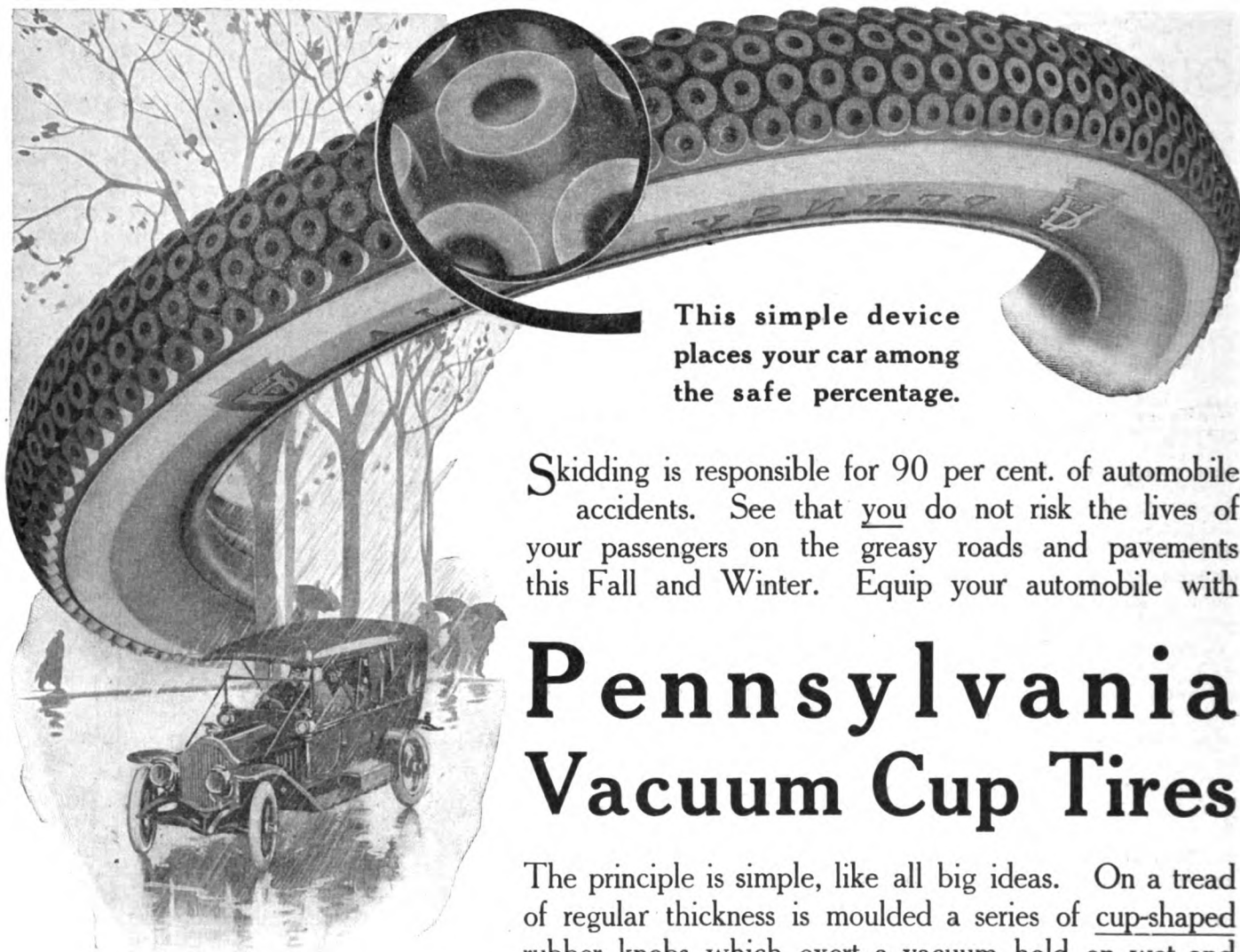
Under the style the Mack Motor Truck Co. of St. Louis, a company has been organized in the Missouri city for the purpose of handling Mack trucks in the Middle West. The company, of which William R. Bush is president and C. G. Fennell general manager, has its headquarters in the Holland building.

The Standard Automobile Co., of Bellefontaine, Ohio, has been petitioned into involuntary bankruptcy by the King Top Mfg. Co., of Dayton; Hamilton Brothers, of Bellefontaine, and the E. L. Essley Machinery Co., of Chicago. Preferential treatment favoring two creditors is charged and the appointment of a receiver is asked.

The Packard Motor Co. of Chicago, Ill., has purchased the business of the Welch Brothers Motor Car Co., its agents, at Milwaukee, Wis., and will continue the sale of Packard cars at the same address, Grand avenue and Seventh street. The business will be run as a branch of the Chicago concern, under the management of O. G. Heffinger.

Following the example of the larger companies, the Schacht Motor Car Co., of Cincinnati, Ohio, has decided to establish factory branches in the larger cities. The Chicago agency for the Schacht delivery wagons and trucks, which formerly was in the hands of Cornish & Friedberg, hereafter will be conducted as a factory branch, with E. W. Arbogast as manager.

On the application of W. W. Hopewell, one of the partners in the E. C. McCormack Co., which operates an automobile livery in Sioux City, Ia., the court has appointed D. R. Chapman receiver for the company. The property of the concern consists of four automobiles, against which an indebtedness of \$1,000 has accumulated. In his petition Hopewell states that the business of the company in renting cars has been practically nil for several weeks and that the storage charges on the cars are piling up so as to threaten the disappearance of all the assets.



This simple device
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The principle is simple, like all big ideas. On a tread of regular thickness is moulded a series of cup-shaped rubber knobs which exert a vacuum hold on wet and greasy pavements. Slipping in any direction is im-

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Longer Service is a strong feature of Pennsylvania Vacuum Cup Tires. Even when the rubber knobs wear down, the tire is still as good for service as a smooth tread tire of regular thickness.

You combine the essential qualities of Safety and Economy by using these non-skid and long wearing tires.

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(Reorganized February 1st, 1910)

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Chicago, 1004 Michigan Ave.

Detroit, 247 Jefferson Ave.
Minneapolis, 917 First Ave. S.

Pennsylvania Rubber Co. of New York
New York City, 1700 Broadway

Pennsylvania Rubber Co. of California
San Francisco, 512-14 Mission St. Los Angeles, 930 So. Main St.





PUBLISHED EVERY THURSDAY BY
The Motor World Publishing Co.

154 NASSAU STREET, NEW YORK, N. Y.

A. B. SWETLAND.....President

F. V. CLARK.....Secretary-Treasurer

R. G. BETTS.....Managing Editor

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00
Single Copies (Postage Paid) . . . 10 Cents
Foreign and Canadian Subscriptions . . . \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications
Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, NOVEMBER 30, 1911.

The "Temperamental Thing" in Business.

In rounding out his well-tempered and unusually fair criticism of American cars and American institutions which has extended over a period of several months, the editor of the London Automobile Engineer, who spent several weeks in this country, brought himself to a somewhat remarkable conclusion which can be made to account for part or all of many things.

"There is one temperamental thing which has a great effect on all industries in America," he says, "and this is the fact that men do not choose a profession or a business for life, in the way which is usual in this country. A man who is occupying a high position on the engineering side of the automobile industry to-day may be the moving spirit of a typewriter concern tomorrow, and the next day his only interest in life might be something equally different. Similarly, the capitalists who are now taking up motor car manufacture are not by any means always doing so with the intention of studying the business and building up great firms with great reputations—they are often content if they can work at it for three, four, or five years, clear some profit, and then transfer their attention to the next new thing."

It is not to be denied that there are not at least two grains of truth in these assertions, but in its last analysis it well may be questioned if the "one temperamental thing" is peculiar to America. The new industry and the booming industry attract the speculator and the get-rich quick gentry as naturally as honey attracts bees and, differences of population considered, it is doubtful if they are much more numerous in this country than they are in the United Kingdom. Certain it is that the capitalists of the two countries do not greatly differ. Their business is the investing of money and the loaning of money where it promises the greatest return. In the true sense, the capitalist is nowhere a real builder of great industries, even though he may dominate them.

Undoubtedly there are men prominently engaged in the automobile industry of America who will sell out and clear out the moment they have made their "piles" and care naught what becomes of the business, but, looking backward, it is not easy to recall any of those who started when the industry started, or soon after, who are not still engaged in it. It is much easier to call to mind other newer and large manufacturers who have refused opportunities to sell out or engage in mergers which promised still larger and easier fortunes.

It is incontestable that, like Americans, practically all automobile manufacturers of Great Britain and of Europe once were engaged in other lines of industry, and that they "switched over" solely because of slackness of trade, and the promise of better returns. And they all have their price. Offer it to any of them and it is fairly safe prophecy that the foreigners who "have chosen a profession or business for life" quickly will abandon it and "seek the next new thing."

It will take more than the sophistry of the Automobile Engineer to make us believe that a stretch of salt water greatly alters human nature.

Gear Ratios and Gasolene Consumption.

To the observant mortal who has had even a little experience, one of the most striking points in the upkeep of a car which suggests itself is the truly remarkable difference in gasolene consumption shown by cars of practically the same size and weight, but of different makes. One car, for instance, can be operated consistently

at 15 or 16 miles to the gallon of fuel, but another car having an engine of exactly the same size will fall short of these figures by as much as five miles to the gallon.

Obviously, engines of different construction, even though their cylinders measure the same, cannot be expected to show exactly the same efficiency; there always will be a slight difference. Similarly, two cars in the hands of two drivers will differ as regards their gasolene consumption, but the fact remains that in a great many cases the actual difference is out of all proportion to what legitimately can be expected. Naturally, a great deal depends on the make of carburetter used, and the accuracy of its adjustment, but in nine cases out of ten the real answer to the riddle will be found in the gear ratios of the cars. The car that is geared the highest within prescribed limits will show the greatest economy, but it will not be able to climb as steep a hill on "high" as will a lower geared car. Therefore why not retain the lower gear for direct drive and provide a higher gear—an overstep—for ordinary running on level roads where most running is done, and thus obtain the benefits of both?

A few manufacturers do employ gear change mechanisms arranged along these lines, but nearly all of them produce cars of the heavy, expensive type, the ownership of which is restricted largely to those who have not to care particularly about gasolene consumption. But in the light, cheap car class there is yet to appear a car so equipped and there really is need of the arrangement. The ordinary four-speed gear box with direct drive on high was a step in the right direction, but there still is room for improvement, and there is double or triple reason for the improvement, inasmuch as it would decrease upkeep cost, which would increase the popularity of the vehicle, and it would reduce wear and tear on the engine by permitting it to run at more nearly reasonable speed when the car is traveling at reasonable speed, as prescribed by law, over level roads. Of course, it may be said that the average light car engine is not sufficiently powerful to propel a car unless it is geared low, but the rate of speed at which the average engine in a small car runs when the car is running at say between 25 and 30 miles an hour sets at naught the contention and merely serves as an additional argument in favor of higher gear ratios.



Detroit, Mich.—M. & P. Electric Vehicle Co., under Michigan laws, with \$10,000 capital.

Worcester, Mass.—Acme Motor Car Co., under Massachusetts laws, with \$40,000 capital; to deal in automobiles. Corporators—W. Vincent, E. D. Wheeler.

Washington, Pa.—American Tire and Filler Co., under Pennsylvania laws, with \$200,000 capital; to manufacture and deal in automobiles and other motor vehicles.

Chicago, Ill.—Studebaker Corporation of America, an Indiana corporation, admitted to do a general automobile business in the State of Illinois. Illinois capital, \$100,000.

Dallas, Texas—Oldsmobile Co. of Texas, under Texas laws, with \$10,000 capital; to deal in automobiles. Corporators—Clinton C. Clark, Rhodes S. Baker, Wendel Spence.

Morrisonville, Ill.—General Auto Sales Co., under Illinois laws, with \$5,000 capital; to deal in automobiles and supplies. Corporators—J. E. White, E. C. Luther, T. C. Dodson.

St. Joseph, Mo.—Buchanan Auto Co. of St. Joseph, under Missouri laws, with \$2,000 capital; to deal in automobiles. Corporators—E. T. Wells, A. K. Burger, C. C. Rhodes.

Chicago, Ill.—Perfection Storage Battery Co., under Illinois laws, with \$50,000 capital; to manufacture electrical supplies. Corporators—C. E. Winters, G. B. Lyons, J. W. Hake.

Taunton, Mass.—Perry Auto Co. of Taunton, under Massachusetts laws, with \$3,000 capital; to deal in automobiles. Corporators—Homer E. Lane, Frank W. Perry, James B. Wetherell.

Chicago, Ill.—Stevens Motor Truck Co., under Illinois laws, with \$10,000 capital; to deal in motor vehicles and automobiles. Corporators—George P. Stevens, Louis F. Stevens, Agnes M. Stevens.

Chicago, Ill.—Operators Auto Supply Co., under Illinois laws, with \$2,500 capital; to manufacture and deal in automobile supplies. Corporators—James C. Paul, Jefferison Moore, L. W. Plummer.

Chicago, Ill.—Mogul Motor Truck Co., under Illinois laws, with \$125,000 capital; to manufacture and deal in motor vehicles. Corporators—George Griffith, L. S. Jones, Frank Dawson, John P. Hicks.

Indianapolis, Ind.—Indiana Motor Co., under Indiana laws, with \$10,000 capital; to deal in automobiles. Corporators—W. C. Teasdale, W. K. Bromley, G. C. Simmons, C. U. Nankival, L. E. Willson.

Plaquemine, La.—The Plaquemine Motor Car Co., Limited, under Louisiana

laws, with \$10,000 capital; to deal in automobiles. Corporators—Dr. W. A. Hallows, Henry Nadler, E. B. Schwing.

Park Ridge, N. J.—Star Auto Co., under New Jersey laws, with \$10,000 capital; to deal in automobiles and maintain a garage. Corporators—Robert A. Sibbald, Frank O. Mittag, Jacob H. Stark, Harry S. Stark.

Shelbyville, Tenn.—Belmont Auto Co., under Tennessee laws, with \$5,000 capital; to deal in automobiles and operate motor vehicles. Corporators—F. N. Stover, W. A. Frost, H. W. Woosley, John D. Hutton.

Mount Vernon, N. Y.—Meteor Automobile Co., under New York laws, with \$50,000 capital; to manufacture motors, engines and motor vehicles. Corporators—F. A. Kateley, A. F. Gescheidt, J. Emmeluth.

Indianapolis, Ind.—Pedalmobile Manufacturing Co., under Indiana laws, with \$2,500 capital; to manufacture pedalmobiles. Corporators—George Herff, J. F. Minthorn, A. T. Purcell, P. A. Porteur.

Wilmington, Del.—Trackless Trolley Co. General of Pennsylvania and Delaware, under Delaware laws, with \$50,000 capital. Corporators—B. P. Ocheltree, J. G. Gray, M. B. F. Hawkins, all of Wilmington, Del.

Chicago, Ill.—Acme Automatic Tire Pump Co., under Illinois laws, with \$50,000 capital; to manufacture and deal in automatic pumps for automobiles. Corporators—Francis J. Carroll, Emil Rosenthal, Francis J. Houlihan.

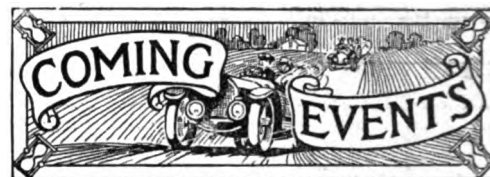
Kansas City, Mo.—National Spring Wheel Co., under Delaware laws, with \$1,000,000 capital; to manufacture automobile and other wheels. Corporators—T. J. Bakendorf, H. W. McNutt, G. E. McCreedy, all of Kansas City, Mo.

Charleston, W. Va.—Kanawha Auto Truck Co., under West Virginia laws, with \$50,000 capital; to manufacture and deal in automobiles. Corporators—W. S. Roberts, J. S. Sydenstriker, George F. Gates, D. S. Gunther, J. D. Woodroe.

Mishawaka, Ind.—Star Garage Association, under Indiana laws, with \$5,000 capital; to maintain a garage and deal in automobile supplies. Corporators—Guy Stutzman, Louis Slick, Marion Pancack, Charles Renner, Clara Stockbarger.

St. Louis, Mo.—The Curtis Jack and Truck Co., under Missouri laws, with \$75,000 capital; to manufacture a combination jack and hand truck for handling automobiles. Corporators—J. R. Curtis, H. C. Flunker, A. W. Smith, Otto F. Stifel, George E. Booth.

Braddock, Pa.—Miles Motor Tire Spring Co. of Braddock, under Delaware laws, with \$200,000 capital; to manufacture motor trucks, springs and tires for vehicles. Corporators—Charles W. Dressler, Thomas G. Aten, Charles L. Baliyser, Zenob A. Delwartz, all of Braddock, Pa.; Frederick Miles, Wilkinsburg, Pa.; M. R. Myers, Huntingdon, Pa.



December 2, Albany, N. Y.—New York State Automobile Association's annual convention at Hotel Ten Eyck.

December 20, New York City, N. Y.—Annual banquet of the Automobile Club of America at Waldorf-Astoria.

December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

December 30-January 6, Buffalo, N. Y.—Buffalo Automobile Trade Association's annual show in 74th Regiment Armory.

January 2-10, New York City, N. Y.—Importers' salon at Hotel Astor.

January 6-13, New York City—Automobile Board of Trade's 12th annual show in Madison Square Garden. Pleasure vehicles only.

January 10-13, Peoria, Ill.—Peoria Automobile Club's show in the Coliseum.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual national show in New Grand Central palace. Pleasure and commercial vehicles.

January 13-19, Milwaukee, Wis.—Milwaukee Automobile Dealers' Association's annual show in Auditorium.

January 13-27, Philadelphia, Pa.—Philadelphia Automobile Trade Association's annual show in First and Third Regiment Armories.

January 15-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden. Commercial vehicles only.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

January 22-27, Providence, R. I.—Rhode Island Licensed Automobile Dealers' Association's show in the State Armory.

January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association's annual show at Wayne Garden.

January 27-February 3, Pittsburgh, Pa.—Automobile Dealers' Association of Pittsburgh, Inc., sixth annual show of pleasure cars.

February 3-10, Montreal, Can.—Automobile Club of Canada's annual show at Drill Hall.

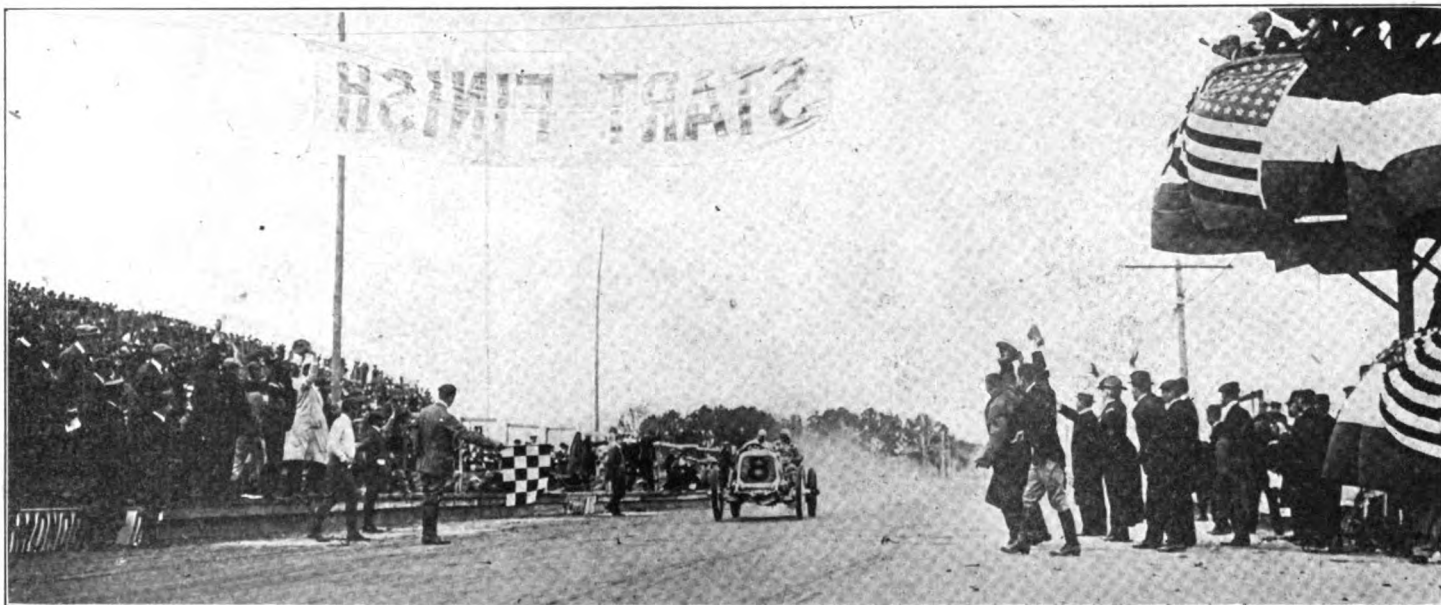
February 5-10, Pittsburgh, Pa.—Automobile Dealers' Association of Pittsburgh, Inc., sixth annual show of commercial vehicles.

February 5-17, St. Louis, Mo.—Annual show in the Coliseum.

February 12-17, Ottawa, Can.—Ottawa Valley Motor Car Association's first annual show.

Mulford's Victory in the Vanderbilt Cup

Lozier Star Earns the Reward of Swift but Consistent Driving, Simply Wearing Down the Foreign Cars—Completes 291 Miles in 238 Minutes—Hughes Takes the Savannah Challenge Cup and Witt the Tiedeman Trophy.



THE SCENE AT SAVANNAH WHEN MULFORD CROSSED THE LINE A WINNER

There are those who said that the Vanderbilt Cup race could not thrive on other than Long Island soil. They prophesied that its transplantation to Georgia would serve to diminish the renown of America's most famous classic. But the prophets were wrong, as prophets often are, for the results prove beyond cavil that it actually was as big even if it was no better than before. And it proved an unqualified triumph for an American car and an American driver. Smiling Ralph Mulford won it with his white Lozier, as every one knows, and the speed that he made—74.09 miles an hour—is just a hair less than the new world's record recently established on the Santa Monica course in California.

It was the fourth time in as many years that an American driver and an American car proved the best combination. George Robertson with a Locomobile started the winning streak, and since then no foreign car or driver has had a look in. They have come mighty near to it, it is true, but not near enough. Ralph De Palma, who is an Italian, and who drove a specially imported German car—a Mercedes of 90 horsepower—very nearly touched the famous cup on Monday last. But he will have to wait a whole year, and possibly longer, for another chance. He did not drive quite fast enough, and though he finished but a little more than two minutes behind Mulford, his best efforts were unavailing. But he has the consolation of knowing that

he made the fastest lap in the race, or for that matter the fastest lap that ever was made on the 17.14 miles circuit. He shot around in the almost phenomenal time of 13.14 seconds, which is equal to a speed of 78.09 miles an hour, or 46.3 seconds to the mile, and is certainly pretty fast going from either angle. His time for the 17



MULFORD'S SMILE AND HIS WIFE

laps—291.38 miles—was 238 minutes 11.95 seconds.

"Spence" Wishart, as he is affectionately styled by those who know him well enough, was third, also in a Mercedes, but he had to drive like fury to get it, for Harry Grant, who, as history records, twice before, and in succession, had accounted for

Vanderbilt Cup races, was close behind him all the time and pushing him to the limit. At the finish the Lozier pilot whizzed over the line just about four minutes behind Wishart, whose time was 246 minutes 20.37 seconds. Grant's time was 250 minutes, 23.57 seconds. E. H. Parker nosed in fifth, his Fiat being the only one of the three entered to complete the distance. Parker's time was 254 minutes 25.83 seconds, and Louis Disbrow in his old reliable Pope-Hartford, was the only other driver to finish before the race was called. His time was 259 minutes 3.68 seconds.

Competition was just as keen in the two night car races that preceded the Vanderbilt, too—the Savannah Trophy race for cars in the 231-300 class at 221 miles and the Tiedeman Trophy race for cars of less than 230 cubic inches piston displacement at approximately 170 miles. Though it almost was a foregone conclusion that Hughie Hughes and his Mercer were unbeatable in the former event, there was nothing too sure about it and the result was in doubt right up to the last. He won, however, in 195 minutes 37 seconds flat, an average speed of 68.35 miles an hour, as against Dawson's last year's average of 62.98 miles. There were only two Marmon cars entered for this event and their drivers, Louis Heineman and Joe Nikrent finished second and third, respectively. Heineman's time was 201 minutes 41 seconds and Nikrent's was 204:42.

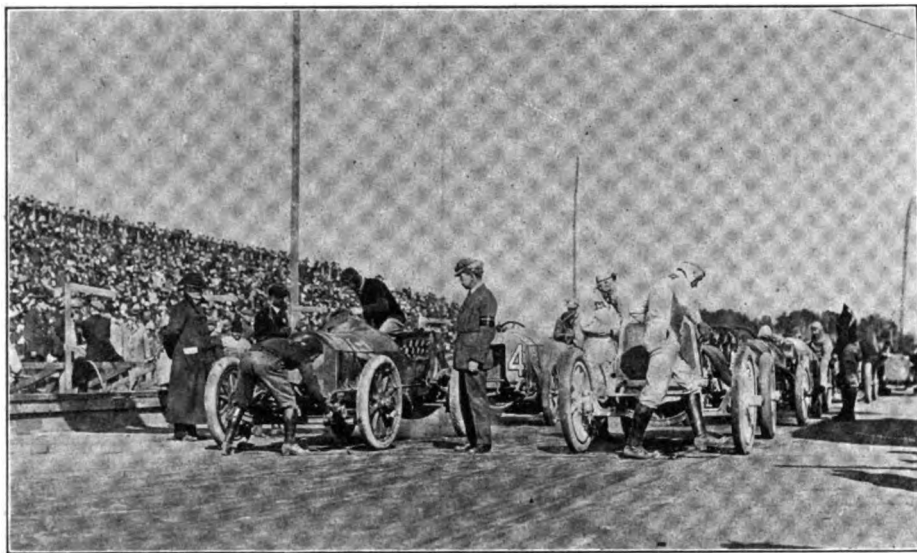
The "baby" car race for the Tiedeman trophy proved as clean a sweep for one brand of cars as ever has been chronicled. Three E-M-F's, driven by Frank Witt, Robert Evans and Jack Tower, finished one, two, three in that order, the leader's time being 176 minutes 19 seconds. Evans's time and Tower's were 180 minutes 12 seconds and 181 minutes 33 seconds, respec-

such and like diversions. Otherwise, however, the course was infinitely different and infinitely superior to the old stamping ground of Vanderbilt cup hunters. In the first place it was smooth, it had been oiled and oiled and oiled and rolled until there scarcely was a real wrinkle in its entire 17 miles of length. This is borne out by the speed made over it. Last year when the

and they escaped injury. What might have happened had the spectators been permitted to crowd over the course, as they always have been permitted to do at every other Vanderbilt race, is open to conjecture. But they were not, and in this respect the guards who patrolled the roads have earned a record for efficiency that is unexcelled. As was the case last year, the guards were provided with real rifles equipped with sure enough bayonets and woe betide the spectator who attempted to get beyond the pales of the side lines.

"Long before daylight the crowds commenced to arrive"—that's the way all the previous Vanderbilt cup race stories have been sub-started, and the same phrase applies in this case as it has in the others. As a matter of fact, a big section of the crowd was right on the ground all night, and one New Yorker who was there remarked that it was just like the good old times on the Long Island Motor Parkway when racing enthusiasts shivered and waited for the first car to pass, snorting and shooting flame in the blue haze. For it was decidedly chilly on the Savannah course on the night previous to the races. Northerners who never have occasion to wander Southward may be surprised to know that when Old Sol eventually took down his shutters and commenced to do business there was a heavy coating of hoar frost on the grass and the big, bleak grandstands.

But it did not last long and by the time the light cars were ready to be started at



LINED UP FOR THE START OF THE VANDERBILT

tively. Frank Kulick in a Ford was the only man still in the running when the race was declared finished. He covered the distance in 201 minutes 7 seconds.

More than once it had been more than hinted that the Savannah Automobile Club knows how to run race meets; it was proven by the handling of last year's Grand Prize race, and the performance was repeated this year during the three races that were held on the one day. Of course, there were crowds on hand, that was to be expected in view of the exceptional racing feast provided in the Vanderbilt and Grand Prize races within a few days of each other, to say nothing of the light car races. But the crowds were out of proportion to what might have been expected. Everywhere everyone was speed mad but good-natured withal, as crowds which attend races usually are.

And not a little of the increased population could be traced to Northern origin. From practically every city of any size special trains were run and turned into hotels during their four days' stop on sidings near the race course. From the city of Savannah proper out to the course, which is just outside the city limits, extra trolley car service was inaugurated and the steam train lines doubled the number of cars in service for the day. It is safe to say that never before was such a crowd gathered in or near that old Georgia city.

Of course there were three card monte games and strap games and just plain shell games, and in this respect the Savannah course was not unlike the Long Island course, which always has been noted for

Grand Prize race was run over practically the same course it was pronounced very nearly perfect, and this year it was even more so. Curves had been widened, as



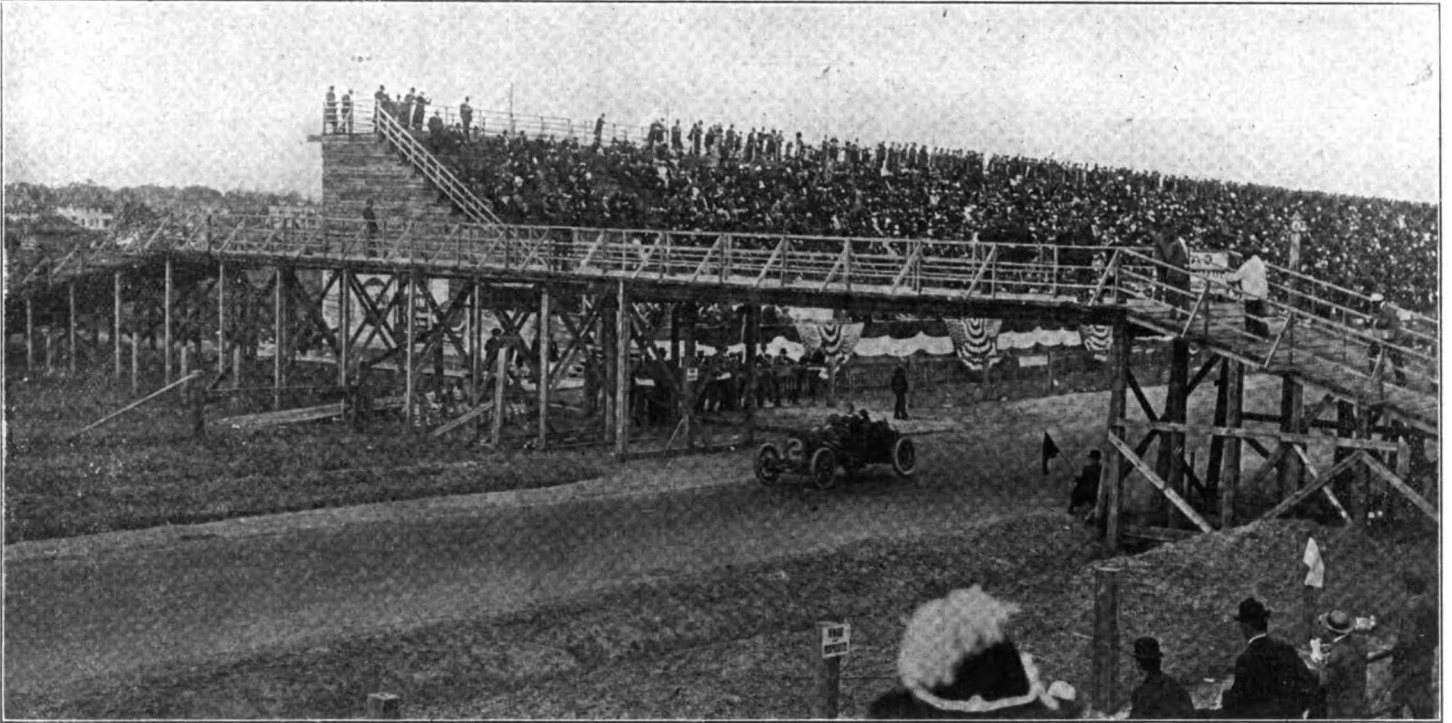
MULFORD NEGOTIATING ONE OF THE BANKED TURNS

had many of the straight stretches, and in several places where fences or posts showed too great a liking for the limelight near the course they were removed bodily. Never was such a course before and the drivers liked it.

It goes without saying that no one was hurt—that is seriously—during the progress of a race over the Savannah course. A couple of the drivers had narrow escapes, to be sure, but Providence was with them

about half past seven the sun was shining brightly and a few of those who were most energetic commenced to shed overcoats. By this time the grandstand was fairly well filled though there still was plenty of room. The really big crowd did not put in an appearance until the light car races were well under way, for as usual, chief interest centered in the Vanderbilt.

Immediately the two light car races were run, it then being in the neighbor-



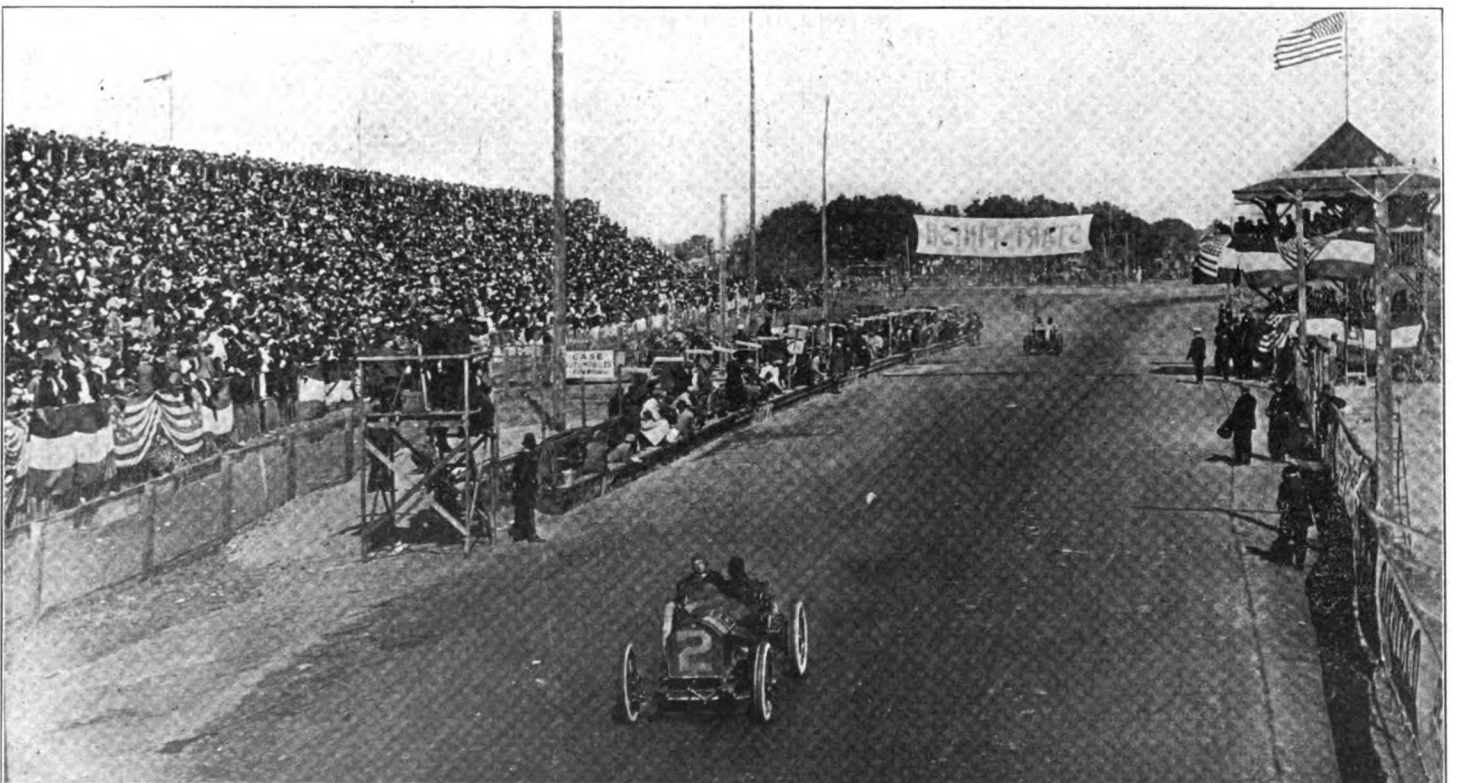
BURMAN (MARMON) PASSING UNDER BRIDGE AT FAR EDGE OF GRANDSTAND

hood of 11:45 by the clock, Starter Fred Wagner, who always has officiated at Vanderbilt races as long as can be remembered, commenced to get the heavy cars ready for the piece de resistance. There were 14 of them, and when they lined up America, Germany and Italy were represented. The race, by the way, was for the Willie K. Vanderbilt, Jr., Cup, with \$2,000 added, and \$1,000 more to the driver of the first American car to finish. It was run under the

rules of the American Automobile Association for cars of from 301 to 600 cubic inches piston displacement.

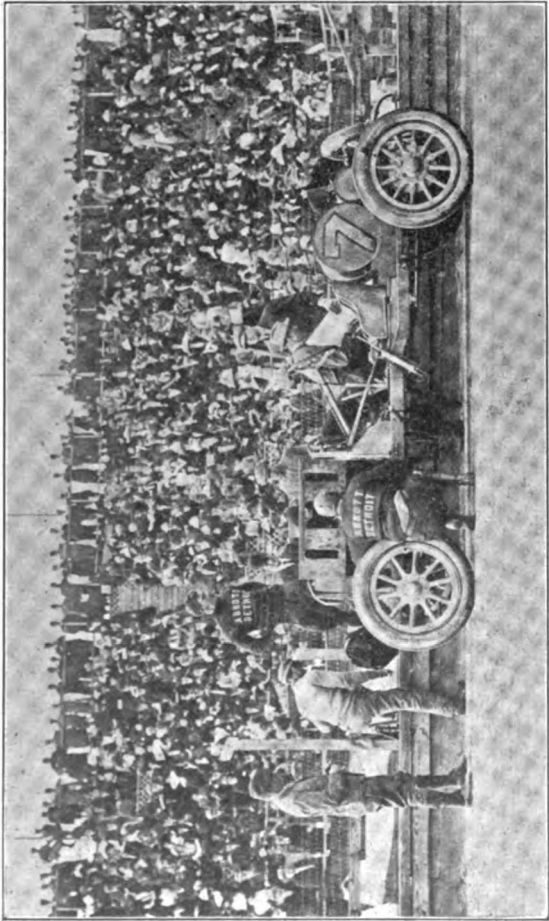
As Starter Wagner clapped Harry Grant on the back in the manner for which he has become famous and the big, white Lozier car slid out over the line, a great howl emanated from the grandstands, for Grant was a prime favorite, and from then until the last of the cars had been sent away grandstandees remained standing,

excited, and literally held their several breaths. The rest of the cars were sent away at 30 second intervals, the order of start being as follows: Grant (Lozier), Burman (Marmon), Disbrow (Pope-Hartford), Wishart (Mercedes), Cabe (Jackson), Hughes (Mercer), Limberg (Abbott-Detroit), Mulford (Lozier), Mitchell (Abbott-Detroit), De Palma (Mercedes), Parker (Fiat), Patschke (Marmon), Bruce-Brown (Fiat), Matson (Fiat).

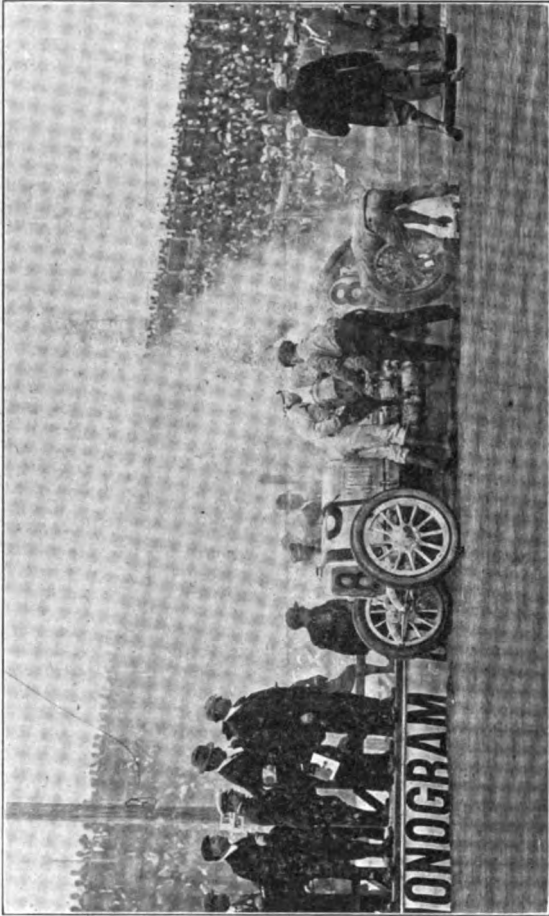


GENERAL VIEW AT THE STARTING AND FINISHING POINT, SHOWING PITS AND OFFICIAL STAND

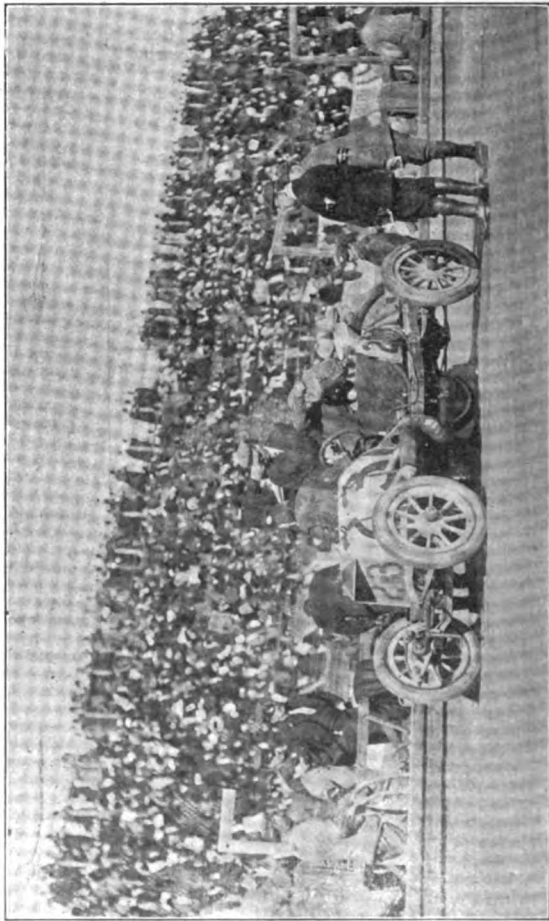
"ACTION" AT THE REPAIR PITS IN FRONT OF THE GRANDSTAND AT SAVANNAH



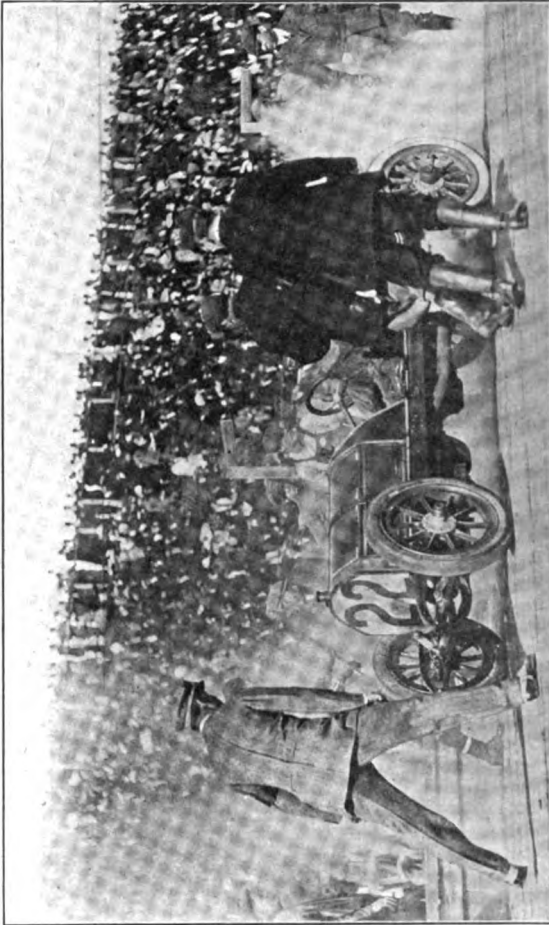
LIMBERG FINDS CAUSE TO RAISE HIS ABBOTT'S BONNET



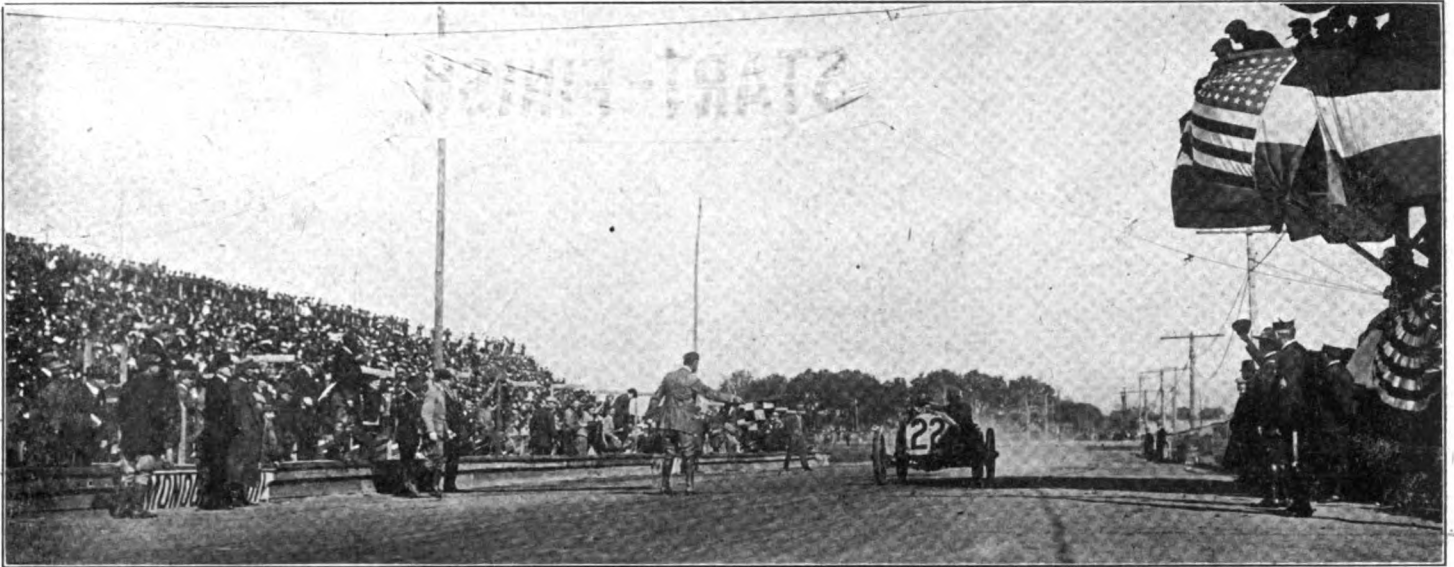
MULFORD TAKING ON FUEL AND CHANGING A TIRE



BUCKLEY (CASE) PERFORMING A HURRIED REPAIR



HUGHES CAUSES THE OFFICIALS TO "STEP LIVELY"



HUGHES (MERCER) ROMPING HOME AN EASY WINNER OF THE SAVANNAH CHALLENGE CUP

At the outset it was an open secret that De Palma was out for speed. Apparently it was his purpose to drive wide open in the hope that some of his rivals at least would be killed off in the early stages of the race. But his rivals were sticking for the present anyway, and drive as furiously as he would he could not gain an awful lot of ground in the first lap. But in the second round he drove even more furiously and it was in this lap that he made the fastest time of the day, averaging in the neighborhood of 78 miles an hour. But his burst of speed had stood him in good stead, for in the second, third, fourth and fifth laps he led the pack on elapsed time though not in position. Except for the fact that Wishart had passed both Burman and Disbrow, the rest of the cars came around in very nearly the same order in which they started.

In the meantime the unusually fast pace had commenced to tell and the first to retire was Harry Cobe. Up to the time of his retirement he had been going great guns, but was forced out early with engine troubles. Tire trouble, too, began to be evidenced, and at the end of the fifth lap De Palma was forced to stop for replacements. This permitted Mulford, who had been steadily plugging along and leaving his competitors behind him one by one, to move up into first place, his time for the 103 and a fraction miles being 82 minutes 31 seconds. Burman had forced his Marmon up into second place, a little more than a minute behind the leader, and De Palma was third another minute further back.

Flushed with his recent victory in the Savannah trophy race, Hughie Hughes was pounding around in great style. His Mercer was the only six cylinder car in the race and in view of the consistent work of the four cylinder Mercers wherever they have appeared, the rate of speed at which it traveled was not wholly unlooked for. But in the fourth round, when Hughes was well

up among the leaders, his engine began to evince signs of derangement and the car was withdrawn.

Slowly but surely the field was being thinned down, the next man to come to grief being David Bruce-Brown, last year's Grand Prize winner, and on whom not a few had pinned their faith, secure in the knowledge that the end would see his newly imported Fiat, if not in first place,

disappointment that swept over the grandstand at the announcement was keen. At the time of his withdrawal he was running in second position, his elapsed time for the distance being 97 minutes 28 seconds. The cause of his downfall was a rather heftier stone than usual which was picked up by one of his tires and landed against his gasoline line with force sufficient to fracture it beyond repair in time.

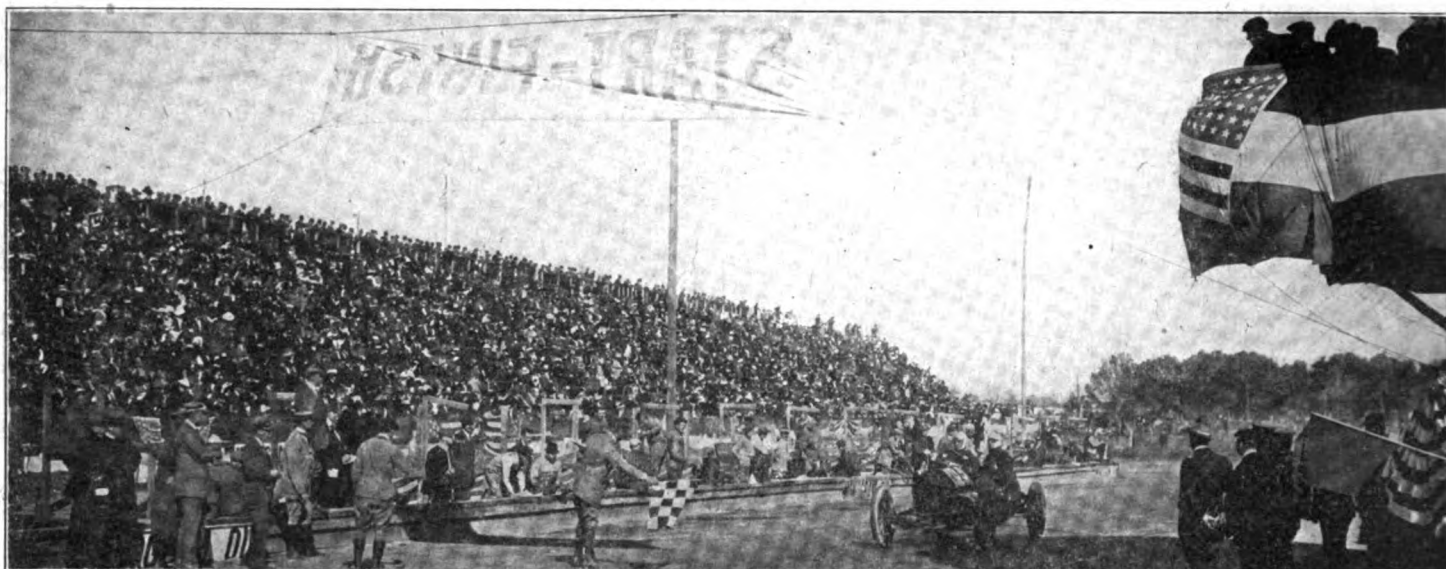
At the end of the eighth lap Mulford still retained his lead with Wishart second, though some four minutes behind him, and De Palma two minutes later in third place. At the end of the next lap, with the race more than half over, there remained 10 of the original 14 starters still in the running, and Mulford was leading them by practically the same margin as in the previous lap. Wishart, however, had nosed out De Palma for second place, the latter having stopped for tires. From this time on it was a three-sided fight between these three drivers, Mulford gaining still more time in the tenth lap, his lead then being a little over five minutes. It was in this lap that Grant, pursuing his usual tactics, first began to loom large on the horizon. Wishart was forced to stop for tires and the delay was sufficient to put him back into fourth place, De Palma moving up to second again and Grant sliding into third from fourth, where he had been hanging on doggedly for several laps.

It was in this lap that Mulford made his first stop to replenish oil and gasoline, and in his hurry to fill the tanks he spilled more than half of the "gas" in the roadway. But he evidently got enough for his purpose, for after having been at work for just 42 seconds he was under way again, and the rousing cheer that he got from the grandstand must have warmed the cockles of his heart. At 206 miles Mulford's average was very close to the 75 mile mark, and though it was stated that the world's road race record for this distance had been broken, a review of the rules of the Ameri-



REFEREE MORRELL, AND PRESIDENT GRANGER, OF THE SAVANNAH CLUB

then not far from it. But on the seventh round his car shed a rear wheel at Montgomery cross roads and went into a ditch. Neither Bruce-Brown nor his mechanic was hurt beyond a shaking up but needless to say, the car was placed hors du combat. "Bob" Burman likewise went out of the race in the seventh lap, and the wave of



WITT (E-M-F) TAKING TITLE TO THE TIEDEMAN TROPHY

can Automobile Association, under which records for intermediate distances are not allowed, will show that this was an error.

De Palma still retained second place at the end of the twelfth lap. He was then some six minutes behind the leader, with Grant plugging along in third place about seven minutes behind. At the time that Bruce-Brown went out of the race, one of the other two Fiats, in the hands of Parker, though running well, was far behind the leader; both of them had suffered more than the usual amount of tire trouble. As a matter of fact, it was tire trouble that was chiefly responsible for the poor showing made by the other cars. All of them showed up well while they were running, and if it had not been for these unavoidable delays it is possible that a different story might have been written.

Matson's Fiat, however, succumbed in the fourth lap with a leaky radiator, Patschke going out later in the ninth, due to trouble with the water circulation in his Marmon. Both of the Abbott-Detroits were running when the race was called off.

With less than 70 miles to go the race narrowed down to a real duel between De Palma with his chunky-looking Mercedes and Mulford in his Lozier. Wishart, however, was not to be denied and never once got out of striking distance of the leaders. In the 14th lap Mulford and De Palma were running first and second but Wishart had succeeded in crowding Grant from third place. In the 15th lap De Palma let loose an unusual burst of speed and gained two minutes on the flying Mulford-Lozier combination. Which meant that Mulford then was just about two and a half minutes ahead of De Palma, with 35 miles to go. At this stage of the race Mulford's time was 208 minutes 7 seconds and De Palma's 210 minutes 40 seconds; Wishart was third in 118 minutes 32 seconds, this being the end of the 15th round.

As Mulford showed up for his 16th lap pandemonium broke loose in the grandstand. He was cheered wildly as he flashed past in a blue haze, and though it was almost certain that he had the race well in hand, both De Palma and Wishart were

close behind him—so close, in fact, that few really knew where Mulford stood.

The rest of the story is quickly and easily told. Continuing the fast pace at which he had traveled throughout the whole of the race, Mulford came around for the 17th and last time in his same consistent manner and, flashed over the wire a winner by a little more than two minutes. De Palma next showed up, and closely following him Wishart pounded over the line into third place. Grant in his Lozier was next, both he and Parker, who finished fifth, having been held back by tire trouble. Disbrow, at the wheel of his Pope-Hartford, was the last man to cross the line before Starter Wagner called the race off.

Of the six cars that crossed the line before the race was called, the first five were sparked by Bosch magnetos and all of them were Michelin shod. Disbrow's Pope-Hartford alone was equipped with other than Bosch ignition apparatus, a Spliltorf magneto being used on this car. Both Mulford's and Grant's Loziers were equipped with Rayfield carburetters.

The Fights for the Savannah Cup and the Tiedeman Trophy

Though chief interest naturally centered in the running of the Vanderbilt, which is not to be wondered at in view of the fact that it was possessed of an international flavor and promised to be productive of the greatest number of thrills, the two light car events which preceded it proved little wonders in themselves. They were started concurrently, seven cars lining up for the Savannah trophy event and one less than that number coming to the line for the Tiedemen trophy race.

For the former event, which was for cars having not less than 230 nor more than 301 cubic inches piston displacement, the starters were as follows: Louis Heineman (Marmon), Hughie Hughes (Mercer), Harry Buckley (Case), W. F. Barnes, Jr. (Mer-

cer), Joe Nikrent (Marmon), Louis Disbrow (Case) and William Knipper (Mercer). Thirteen laps of the course, equal to 222.82 miles, was the scheduled distance.

During the early stages of the race Disbrow in his Case was a little bit more than the whole show; he ran away from the field, but the terrific strain commenced to tell and in the fifth lap he was compelled to withdraw, a broken camshaft being the cause of his untimely end. Hughes drove his usual consistent race, his Mercer humming contentedly around the course with clock-like regularity and never evincing the slightest sign of trouble. He looked all over a winner and with Disbrow out, he rapidly ran away from the others.

The principal feature of the race devel-

oped in the later stages and embraced a battle royal between Nikrent and Heineman for second honors. First one and then the other would slip up into second place, only to fall back again and repeat the operation. Heineman's was the glory eventually, however, though at first it was thought that Nikrent had brought his Marmon in second.

In completing the 222.82 miles in 195 minutes 37 seconds, which is at the rate of 68.35 miles an hour, Hughes bettered Dawson's record by nearly six miles an hour. Heineman was second, six minutes and four seconds behind Hughes, and Nikrent third in 204 minutes 42 seconds. Barnes in one of the other Mercers was flagged while he was going strong, the

others, Disbrow in his Case and Knipper in a Mercer, having dropped out earlier in the race.

In the "baby" car race for the Tiedeman trophy, which was for cars of less than 230 cubic inches displacement and went 10 laps or approximately 170 miles, the three E-M-F cars, driven by Frank Witt, Robert Evans and Jack Tower, finished in first, second and third places, respectively, in remarkably easy fashion, though Roberts in the Abbott-Detroit made things interesting for them while he lasted. When he retired it became apparent that the winner was among the E-M-F trio, but all of them ran so consistently that nothing short of a good guess could evolve the winner until well toward the end. Mortimer Roberts in the Abbott-Detroit ran off the course in the sixth lap and was put out of the race, though neither he nor his mechanic was

injured. At that time he was leading Witt's E-M-F by a narrow margin. Hartman in

SUMMARY OF SAVANNAH RACES

Vanderbilt Cup

Driver and Car	Piston Displacement	Time
Mulford, Lozier.....	544.6	236:00.67
De Palma, Mercedes...	579.0	238:11.95
Wishart, Mercedes.....	579.0	246:20.37
Grant, Lozier.....	544.6	250:23.57
Parker, Fiat.....	588.0	254:25.88
Disbrow, Pope-Hartford	570.2	259:03.68

Savannah Challenge Cup

Hughes, Mercer.....	300.7	195:37
Heineman, Marmon....	299.0	201:41
Nikrent, Marmon.....	299.0	204:42

Tiedeman Trophy

Witt, E-M-F.....	226.2	176:19
Evans, E-M-F.....	226.2	180:12
Tower, E-M-F.....	226.2	181:33
Kulick, Ford.....	176.7	201:07

the other Abbott-Detroit went down and out in the first lap and was not seen or heard of again.

Witt's time for the 171.4 miles was 176 minutes 19 seconds and his average speed was 58.34 miles an hour, which is just a shade better than Knipper made last year with a Lancia in a slightly longer race for cars in the same class. Evans finished in 180 minutes 12 seconds and Tower in 181 minutes 33 seconds. Kulick, who drove his Ford into fourth place, negotiated the distance in 201 minutes 7 seconds.

All three of the cars to finish in the Savannah trophy race were Michelin equipped, as was Kulick's Ford in the Tiedeman. Firestone tires and Splittdorf ignition apparatus was the equipment on the three E-M-F cars; the Mercers in the longer race were sparked by Bosch magnetos.

Ticketed Tourists Complete Long Trip.

Fifty-three days after their picturesque departure from New York City, on October 2, last, the first transcontinental ticketed tourists' agency party, organized and "chaperoned" by the Raymond & Whitcomb agency of New York, reached Los Angeles, Cal., on Thursday, 23d inst. They were escorted into the city by a considerable gathering of motorists. The 4,200 miles of good, bad and indifferent roads were covered on schedule time without serious accidents, despite several unusually severe rain and snow storms, and the four Garford passenger cars and the Garford truck finished the long and arduous trip none the worse for their experience. Ten passengers, including three women, finished the entire trip from New York to the Pacific, paying \$875 each for transportation and maintenance en route. A. L. Westgard acted as the official pilot.

While at first it had been proposed to use ten passenger cars, the number had to be reduced to four, owing to the reluctance of people to trust themselves on such a seemingly hazardous undertaking. The splendid manner in which the cars surmounted the great difficulties before them, and the fact that three women covered the entire route, without suffering hardships or inconveniences, however, are the best proof that a transcontinental trip of this kind is feasible enough, and well worth taking. It is by no means improbable that similar tours ultimately will be regularly promoted, for the scenery and wonders to be seen on the 5,200 mile journey are such as to form the greatest possible inducement to people of leisure and comparative affluence.

The route, which bears the poetic name "Trail to Sunset," led through thirteen States, besides Canada and Mexico, seven of them being traversed in their entire length. It touched the following cities: Albany, Syracuse, Buffalo, Cleveland, South Bend, Chicago, Davenport, Des Moines,

Omaha, Kansas City, Hutchinson, Dodge City, La Junta, Santa Fe, Globe, Phoenix, Yuma, San Diego, Los Angeles. Most of the participants will remain West until spring, while several others will go to Hawaii and the Orient.

The passengers included: Mr. and Mrs. George F. Foote, of Ithaca, N. Y.; Sydney H. Gadding, of Newport; Frederick Bierchank, of New York; R. L. Fox, a globe trotter from Philadelphia; W. F. Harris, of South Orange, N. J.; Col. W. J. Studwell, of Brooklyn; Mr. and Mrs. John Legg, of Worcester, Mass., and Mr. and Mrs. A. L. Westgard.

Bounced Out of Car and Killed.

That New Jersey roads are by no means as smooth and perfect as certain Mosquito politicians would have motorists believe, amply was proven last Sunday, 26th inst., when David Tepper, a two year old boy, was killed, and his mother, Mrs. Mordecai Tepper, of Ridgefield, N. J., severely injured by that rare form of accident—being bounced out of the rear seat of a touring car while crossing over a depression in Grand avenue, Leonia, at less than 12 miles an hour. The car was driven by Mordecai Tepper, its owner, and was fitted with a full-size back, over which the woman and child were hurled with great force.

Fayette County Club Re-elects Officials.

John M. Core, Uniontown, Pa., who has been directing the affairs of the Automobile Club of Fayette County, Pa., will continue at the head of the organization for another year. He was re-elected president at the annual meeting last week. The other officers, all of whom have served the club during the past year, are: Vice-presidents, Dr. A. C. Smith, Brownsville; George F. Titlow, Uniontown; R. W. Playford, Uniontown; governors, A. J. Cochran, Dawson; C. S. Hempstead, New Salem; Judge R. E. Umbel, Uniontown; G. S. Harrow, Uniontown.

Brooklyn Club Celebrates an Anniversary.

Despite good roads and ideal weather conditions none of the 23 members who participated in the Long Island Automobile Club's 100 mile endurance contest on Saturday last, 25th inst., came through with perfect scores. The run was one of the non-stop events, of which several have been held by the club and commemorated the tenth anniversary of the first motor car endurance contest conducted by the organization in 1901. Failure to obtain clean scores was not wholly due to the contestants for the confetti which was strewn along the route on the preceding day had been blown away in places, causing practically all to make a wrong turn at these places. The start and finish was at Jamaica (L. I.) Town Hall, and the course was by way of Flushing, Port Washington, Roslyn, Oyster Bay, Massapequa, Hicksville, Hempstead and back to Jamaica. The time limit was five hours. The prize—a tire donated by Charles Herrmann, secretary of the club—will be awarded today (Thursday) when the committee computes the scores.

Motor Car Commits Murder and Suicide.

Automobiles have been known to develop a tendency to start "on the jump" when cranked, but it has been rare indeed that this predilection has resulted so disastrously as on Sunday last, on board the ferryboat Oswego, while crossing the Hudson from New Jersey to New York. Edward Barry, of 242 Fourth street, Jersey City, owner of the runaway car, started to crank the motor, when nearing the New York shore; he had just stepped aside in order to climb into the seat, when the ferryboat was driven by the tide with great force against the side of the slip. The jar sustained by the boat must have dropped the clutch into position, for in the next instant the car jumped forward violently, running over a boy and breaking his leg, then knocking a man overboard and finally tumbling into the Hudson. The man was drowned.

"PICK-UP" TOUR AROUND GEORGIA

Not a Contest But Newspaper Offers Prize for "Steadiest Schedule"—One Week's Halt at Savannah.

Although conditions for autumn touring in the State of Georgia generally are good, the participants in the 800-mile run of the Automobile Club of Atlanta did not find the near-winter tour, which started from the Georgia city, Wednesday, November 22nd, as easy as they expected. The affair was conducted by the club but the Atlanta Constitution, which termed it the "Around Georgia Tour," really fathered it, and its principal purpose—aside from advertising the Constitution—appeared to be to bring motorists from various sections of the State to Savannah in time to witness the Vanderbilt and Grand Prize races. It was not a reliability contest and no sanction had been obtained from the A. A. A., but prizes will be awarded for what the Constitution calls "the steadiest schedule"

throughout the tour, which will not be concluded until December 2nd.

Sixty-five motorists, with guests, started, although all did not leave Atlanta at the same time as a number fell into line at various places along the somewhat circular route. This was permitted, but to compete for the prize the entire course must be traversed. The first night's control was Americus, Ga., 149.1 miles from Atlanta, and the route was through strictly agricultural country where the farmer knows the value of good roads. Most of the cars made the trip without mishap but T. C. Swann's Buick was side-swiped by another car and the Buick was ditched. Both wheels and an axle were broken and the occupants slightly injured. Repairs were made, however, and the journey continued the next day.

The run on Thursday, the 23rd inst., was to Valdosta and for a short part of the 137 miles the roads were in excellent condition, but a cold, raw rain made the going uncomfortable. Tire troubles were numerous and frequent but most of the contestants checked in on time. Because of the downpour the journey on Friday, 24th,

to Bagley over 112 miles of road that in places had been rendered almost impassable by the rain, the schedule time was lengthened two hours in each class. This permitted all to check in with perfect scores for the day. The run into Savannah on the 25th, was without incident, and roads were in fairly good condition. Miss Regina E. Rambo, Marietta, driving an Overland, made the entire trip into Savannah in good shape. She won somewhat similar fame in a similar run last year. She was the only woman driver, although Mrs. Henry Meinert, also of Marietta, assisted her husband in piloting a Maxwell.

Sunday, 26th inst., the motorists were permitted to make an inspection trip over the Savannah races, as they spend the entire week in Savannah. The return to Atlanta will start next Sunday when the route will lead by the way of Dublin.

Motorists of Augusta, Ga., did not join in the Atlanta run but made the trip to Savannah for the races under the auspices of the Augusta Herald. There were nearly 100 of them.

The participants and the towns at which they fell into line, are as follows:

From Atlanta.

Entrant	Driver	Car
Atlanta Ad-Men's Club.....	C. A. Waite.....	Imperial
Ohio Motor Car Co.....	Harry Mathews.....	Ohio
W. V. Kriegshaber.....	W. V. Kriegshaber.....	Chalmers
Chamber of Commerce.....	Harry Knight.....	Cole
H. B. Odell.....	H. B. Odell.....	Thomas
W. D. Alexander.....	D. C. Alexander.....	Dorris
T. C. Lauren.....	T. C. Lauren.....	Packard
George H. Fauss.....	G. H. Fauss.....	Dorris
Velie Motor Car Co.....	H. Jones.....	Velie
Velie Motor Car Co.....	H. Moore.....	Velie
Dolph Walker.....	Dolph Walker.....	National
D. Woodward.....	Perry Marshall.....	Knox
D. D. Armstrong.....	D. D. Armstrong.....	Thomas
E-M-F Co.....	G. W. Hanson.....	Flanders
E-M-F Co.....	W. H. Soules.....	Flanders
E-M-F Co.....	Joe Hanson.....	Flanders
Evelyn Harris.....	Jules Bescoyart.....	Thomas
W. G. Sutherlein.....	W. G. Sutherlein.....	White
Robinson Neckwear Co.....	J. Robinson.....	Marmon
Steve R. Johnson.....	Gordon C. Stowers.....	Buick
W. B. Cummings.....	W. L. Gilbert.....	Buick
St. E. Massengale Adv. Agcy.....	W. H. Williams.....	Garford
Boyd Perry.....	Boyd Perry.....	Ohio
Gulf Refining Co.....	H. R. Kroener.....	Mitchell
Georgia Motor Car Co.....	D. T. Bussey.....	Liberty-Brush
Georgia Motor Car Co.....	F. J. Hill.....	Everitt
William J. Davis.....	Clifford Carter.....	Pope-Hartford
Trio Laundry Co.....	Jack Washington.....	E-M-F
W. B. Stovall.....	W. B. Stovall.....	Cole
Georgia Home Builders.....	W. F. Brandt.....	White
Primo Motor Co.....	.....	Primo
Marvin R. McClatchey.....	M. R. McClatchey.....	White

From Ocilla.

Dr. J. C. Luke.....	Dr. J. C. Luke.....	Ohio
Ohio Motor Car Co.....	J. W. Paulk.....	Ohio
Jake W. Paulk.....	J. A. Wyche.....	Ohio
M. Luke, Jr.....	M. Luke, Jr.....	Everitt

From Americus.

Muckalee Cigar Co.....	Cliff Clay.....	Marmon
W. E. Sawyer.....	W. E. Sawyer.....	Overland
W. A. Ayash.....	W. A. Ayash.....	Overland

From Waycross.

Fred Brewer.....	Fred Brewer.....	Buick
Dr. Gus P. Folks.....	Dr. Gus P. Folks.....	Cadillac
Coco Cola Co.....	E-M-F

From Cornelia.

A. M. Kitchen.....	E. F. Kitchen.....	E-M-F
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From Dublin.

Entrant	Driver	Car
G. H. Reinhart.....	G. H. Reinhart.....	Chalmers
Sam Bashinski.....	Sam Bashinski.....	Chalmers
Frank G. Corker.....	F. G. Corker.....	White

From Gainesville.

S. C. Dunlap.....	William Summer, Sr.....	E-M-F
Will Summer, Jr.....	Will Summer, Jr.....	E-M-F

From Swainsboro.

J. Leon Bell.....	J. Leon Bell.....	Cadillac
N. E. McLord.....	N. E. McLord.....	Westcott

From Culloden.

Holmes Bros.....	C. A. Holmes.....	Buick
U. S. Fuller.....	J. B. Holmes.....	Cadillac

From Marietta.

Miss Regina Rambo.....	Miss Regina Rambo.....	Overland
Henry Meinert.....	Henry Meinert.....	Maxwell

From Boston.

Balksom & Ricketson.....	H. Ricketson.....	E-M-F
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From Nashville, Tenn.

Marathon Motor Car Co.....	Press Car.....	Marathon
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From Decatur.

W. A. Thatcher.....	W. A. Thatcher.....	Buick
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From Valdosta.

G. W. Varn.....	H. M. Reddick.....	Cadillac
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From Albany.

F. G. Edwards.....	J. P. Stripling.....	Chalmers
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From Covington.

Swann & Campbell.....	T. C. Swann.....	Buick
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From De Witt.

Herbert C. White.....	H. C. White.....	Maxwell
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From Baxley.

Baxley Chamber of Commerce.....	D. D. Gilmore.....	Buick
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From Canton.

D. T. Bowers.....	D. T. Bowers.....	Case
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From Eatonton.

B. R. Beck.....	B. R. Beck.....	Overland
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From Ellaville.

Dr. B. L. Bridges.....	Will Boyd.....	Buick
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DEVELOPING THE IDEAL TAXICAB

James Takes the First Step in that Direction—Questions that Are Expected to Assist the Project.

Part of the plan of the International Motor Service Association, which, as has been told in the Motor World, was organized by C. C. James for the purpose of proving a national purchasing agency for taxicab and livery companies, is eventually to provide its members with a standard cab. But it is not the purpose of James, who is the president and moving spirit of the venture, to make the plunge without profound study and consultation. It is his intention first to obtain the views of as many as possible of the 1,600 members of the association on the subject. To this end he has prepared a set of questions that cover pretty nearly every imaginable point in the construction of taxicabs and has invited members of the association to answer them according to their tenets. The questions which thus are expected to evolve the ideal taxicab are as follows:

CHASSIS—

Wheelbase.....inches. Tread.....inches.
Clearance.....inches. Tires (size).....inches
(Q. D. or demountable?).....
Brakes—Emergency brake.....inches diameter;
.....inches width; Internal service brake
.....inches diameter;inches face.
Springs—Semi-elliptic; three-quarter elliptic; or
full elliptic?.....

BODY—

Landulet or Limousine?.....
Single or double front seat?.....
With or without trunk rack?.....
Total seating capacity inside?.....
Knee room between front and rear seats?.....
Stationary or folding front seats?.....
Grade of leather used in upholstery?.....
Inside electric dome light or not?.....
Kind of material to be used on floor?.....
Kind of leather used in top?.....
Do you recommend covering the bows with leather
or an inside lining?.....
Do you recommend putty or screws for holding
window panes in place?.....
What kind of material for curtains?.....
Do you favor the plan of making every panel in the
body removable separately?.....

MOTOR—

Cylinders—How many?.....
En-bloc or separate?.....
Bore.....inches Stroke.....inches
Horsepower..... Valves.....
Camshaft bearings, material.....
Crankshaft bearings, material.....
Connecting rod bearings, material.....
Cooling system..... Lubrication.....
Carburettor..... Ignition.....

CLUTCH—

Multiple disk or cone.....

TRANSMISSION—

Speeds..... Type..... Capacity.....

AXLES—

Front and rear type, and bearings.....

STEERING GEAR—

Right or left..... Type.....

CONTROL—

Throttle, foot or hand?..... Spark.....

Lever, center or side?.....

GASOLINE TANK—

Location..... Capacity.....

RUNNING BOARD—

Material.....

How London and New York Compare.

According to the most recent official figures there are at present 50,149 motor cars in the London Metropolitan district, of which 3,067 are classed as heavy cars and

include buses, trucks, etc. In addition to these automobiles there are 16,376 motorcycles in the world's largest city. In Greater New York 55,000 motor vehicles have been registered so far this year, but in motorcycles the New World metropolis is far behind London, there being barely 3,000 machines in use here. Since the law first was passed, licenses to drive have been issued in London to 196,103 drivers and riders; this number, however, is somewhat misleading, as it includes many persons who since their registration have died or moved from London.

Board of Trade Adopts an "Angel."

The Automobile Board of Trade has adopted a new "girl" to herald the forth-



BOARD OF TRADE'S NEWEST "GIRL"

coming show in Madison Square Garden. The pert, smartly-gowned and distinctly motorized American young woman who did duty on the bill boards last year has been thrown over and abandoned to her fate. In her place, the fickle show managers have embraced an angel, so to speak—a distinctly Oriental angel—one who not only wears wings but who has cast aside the flowing robe common to angels and garbed herself, or rather the artist has garbed her, in a clinging, filmy and radical decollete gown; and more, this automobile show angel has been adorned with ear rings, a necklace and other geegaws which Orientals probably wear within the pearly gates. Though her arms do not suggest it, she's a muscular angel, too. She is able to hold aloft in either upraised hand a modern motor car. In every respect she's an uncommon angel. Look her over! That's her picture up there, in all her glory and geegaws.

SELF STARTERS OF SIX YEARS AGO

French Tests Recalling That There is Nothing New Under the Sun—Germs of Present Day Ideas.

There is nothing new under the sun—not even in the realm of the engine starter which recently has sprung into such prominence and which to the average individual was distinctly an innovation when first it came to be generally used about a year ago. As a matter of record, the self-starter really is almost as old as the automobile itself, and those who are afflicted with particularly good memories will have little difficulty in calling to mind some of the old devices which made their appearance six or seven years ago. Many of them have disappeared long since but the most surprising thing is that almost an equal number have survived in principle and may be seen in daily use on the cars of some of the most prominent manufacturers. True, they have been improved and perfected, for the automobile industry does not stand still but the ideas involved in all the principal devices of the kind in use to-day are the same, fundamentally, as those on which the old types were constructed.

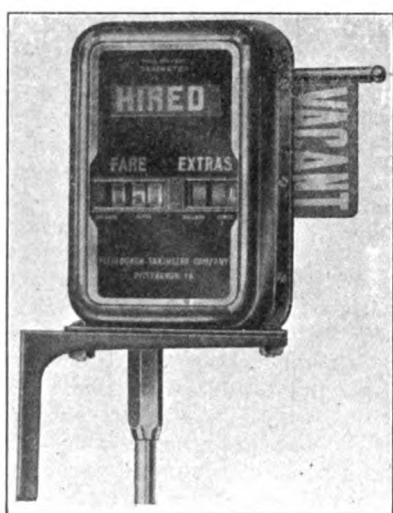
It was in 1905 that the self starter really first began to attract attention, and it is probable that since the Paris show of that year no greater array of such devices ever has been exhibited at one time. No less than 17 different types were shown, and though considerably more than half of them have gone the way of the sundry other half-baked "improvements" of the time and have been discarded, the remainder contained the germ in embryo from which present day starters have been evolved.

Subsequent to the Paris exhibition, to dig up ancient history, though it is none the less interesting because it is history, there was held an open competition in which the various exhibitors of starters were invited to participate. Eleven of the 17 competed and it is interesting to note that first prize for reliability was divided between the More Co. and A. M. Isnard, the device used on the former product being almost identical with one which has been brought out in modified form in America within a month. It was nothing more nor less than a small air pump arranged to force a charge of air and gasoline vapor into the cylinders after which the ignition spark was relied on to start the engine. The Isnard device, however, was very much more complicated and almost immediately disappeared from the market. It was styled the Cinogene and embraced a small auxiliary piston and cylinder provided with a rack and pinion device, the motive power being contained in a small cylinder or "bomb" of compressed

carbonic acid gas. When the compressed gas was released behind the piston the engine was "turned over" through the medium of the rack and pinion which actuated the crankshaft.

Third prize, which amounted to \$200, went to the manufacturers of the Demar-reur Lamele car and the device which was used is being used to-day in slightly modified form by not a few manufacturers. It consisted of a coil spring which was wound up by the engine while it was running and which served to start the engine when permitted to uncoil at the will of the operator. Compressed-air starters even were used at that time, and probably even earlier, though there is little record of earlier use, for one was exhibited on Saurer vehicles which approximated in general construction present day types.

Similarly, the dynamo-motor system of starting engines was in use at that early



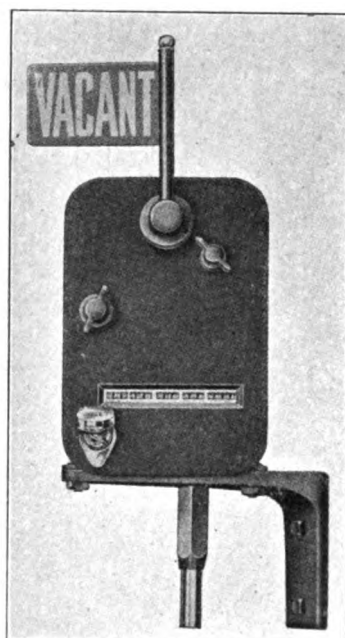
FACE OF PITTSBURG TAXIMETER

TAXIMETERS TO BE SOLD OUTRIGHT

Pittsburg Concern Places New Recording Instrument on Market—Gear Trains Replace Springs and Levers.

Interest has been added to the taxicab situation—which is rather peculiar in that the meters in most general use are closely held by a New York company which rents but does not sell its instruments—by the placing on the market of the Paul Richert taximeter by the Pittsburg Taximeter Co., of Pittsburg, Pa., which company will sell its meters outright.

Improved construction is given by the



REAR OF PITTSBURG TAXIMETER

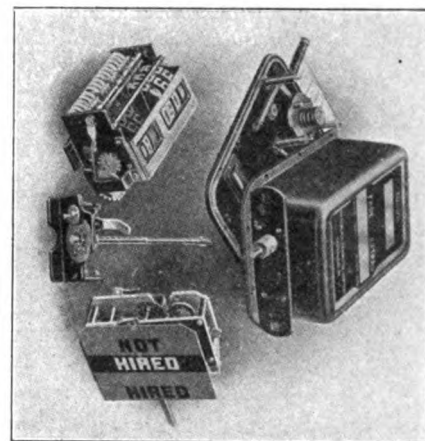
so that their accuracy is ensured. An aluminum shutter is provided for the back reading, which is securely closed by a Yale lock and therefore cannot be tampered with.

As appearance is a factor of importance in the equipment of taxicabs as well as of private pleasure cars, the Paul Richert taximeter has been made as unobtrusively handsome as such a purely utilitarian object well can be made. Its outlines are simple and smooth and the finish neat and durable and its figures are large and easily read.

The Pittsburg Taximeter Co., which just has commenced the real manufacture of the new instrument, is an outgrowth of the Pittsburg Taxicab Co., of which John B. Weibley is the treasurer and the moving spirit. It has its main offices at Centre and Negley avenues, Pittsburg, and its factory at Shadyside, Allegheny county, Pa.

Flanders "20" With Racing Type Body.

While the Flanders "20" is in no sense



MECHANISM OF PITTSBURG TAXIMETER

date, the Pellorce device being one of those which was entered in the competition, but which received only a consolation prize. In this system the dynamo temporarily was converted into a motor to start the engine. Immediately the engine had started several switches were turned and the motor became a dynamo to charge the storage batteries from which it was operated as a motor. Operating as a dynamo it also served for ignition purposes and to light the lamps.

The Proper Way to Cut Gaskets.

In cutting joint gaskets, the material should not be cut all the way through from one side as there is danger of leaving rough edges by this method of procedure. The better way is to cut half way through from one side and then turn the material over and finish the cutting from the other side. If the center of the gasket is cut out first this will prevent the drawing of threads which otherwise would leave channels for the gas or water to escape when the gasket is applied.

makers as the reason they are willing to allow their taximeters to go beyond their direct control. The mechanism of the instrument is divided into three separate and distinct units. One unit comprises the time-keeping section, another the distance recording part and the third the "clock" indicator which converts time and miles into dollars and cents and shows the result on the two indicators, one in the front and the other in the rear of the taximeter. The distinctive feature of the device is that any one of these units may be removed for repairs without disturbing the others, and after repairs have been made, can be as easily and quickly replaced, obviating the necessity for removing the entire taximeter from the car or of entirely dismantling the meter in order to repair one of its constituent parts.

Instead of levers, cams and springs, trains of gears are employed for transmitting motion from the flexible shaft rotated by one of the road wheels of the car to the mechanism of the meter. The front and back indicators are connected by gears,

a speed creation, it has engaged in not a few road and track events and hill-climbs and, driven by Frank Witt, among others, it has given a good account of itself. A direct result is the Flanders "Witt Special," so called because it is built according to that driver's ideas. The new model consists of a Flanders "20" chassis geared up for speed and fitted with a light, low-seated racing type body and big cylindrical gasoline tank. The "Witt Specials," which are making their appearance at the various Studebaker branches, are practically the same as the cars driven by Witt in his races.

Record Attendance at Olympia Show.

No less than 226,095 persons visited the Olympia Show in London during the eight days from November 3rd to 11th, inclusive. Compared with the figures for 1910 this shows an increase of 7,000 visitors, and this despite the fact that on three separate days the admission fee was advanced to two and one-half and five times the regular rate of one shilling.

THE GAPS THE SPARK SHOULD JUMP

Considerations That Govern Setting of Ignition Points and Their Effects—Manufacturers' Recommendations.

If any one, by chance or design, has collected a number of catalogs descriptive of ignition apparatus and is of an investigating turn of mind, one of the first things that will become apparent is that though magnetos in general are of very nearly the same shape and the principle on which they operate is almost identical, there is a surprising amount of difference regarding the accepted size for the gap at the contact points of different instruments. Incidentally, there is very nearly as surprising an amount of difference in the size of the gaps which the same manufacturers recommend between the points of the spark plugs.

In the products of eight of the more prominent magneto manufacturers, no less than five different lengths of gap are advocated; they vary from .016 of an inch, which is the smallest, to nearly double that size, or .031 of an inch, the largest. The gap in question, it should be explained, is that between the contacts of the make and break mechanism when they are most widely separated and not that in what is styled the safety gap. Of course everyone who is well informed knows that the purpose of the make and break mechanism in a magneto is to interrupt the primary current generated by the rotation of the armature in the magnetic field. The safety gap, on the other hand, acts merely in the same capacity as a safety valve on a steam generating boiler. Which is to say, that if the high-tension current cannot find an outlet at the spark plugs because of a broken wire, the damage which otherwise might result to the comparatively delicate winding on the armature is prevented by the safety gap, which permits the "bottled up" current to escape.

Naturally, the different methods of construction which are used by different manufacturers have considerable bearing on the size of the gap between the magneto contact points that is most efficient. But there are several other considerations that govern this size as well and they all must be met. Incongruous as it may seem, the chief consideration is a mechanical one rather than an electrical one. Actually there is no electrical reason for any particular size of opening, assuming, of course, that the condenser is 100 per cent. efficient. Not all condensers are, however, and this imposes another condition. But disregarding other things, an opening is an opening, regardless of its size, and it serves its purpose in interrupting the primary current.

But, that the gap cannot well be greater than a certain size readily may be appre-

ciated, in consideration of the fact that contact must be made and broken twice for every revolution of the armature. Properly adjusted, and with an efficient condenser, a well-designed magneto will operate properly at speeds up to 5,000 revolutions a minute, and in order to do so it is necessary for the make and break mechanism to interrupt the current 10,000 times in a minute. Which is to say, the contact points must be brought together and separated again that number of times in a minute. From which it may be seen that the actual amount of time for the contact points to come together and separate almost is infinitesimal.

It follows, therefore, that the gap between them must be as small as possible, within certain well defined limits, which are governed by the efficiency of the condenser, because the time required for the points to come together after having been widely separated would be considerably greater. Operating at such speed, as a matter of fact, it is likely that the enlargement of the gap by the merest fraction of an inch would so throw the apparatus out of kilter that the cam which causes the contact points to come together would make another revolution before they had had the time to move the required distance.

Another consideration which makes a fairly small gap necessary is the hammering action to which the points are subjected when they are brought into contact. Though each single blow is necessarily very light, it occurs with great frequency, and the aggregate force is considerable. It is practically the same as the continual dropping of water on a stone. Also, with too large a gap, the circuit is broken before the armature has reached the position for the greatest efficiency with the timing lever in the full advance position; as a result, the magneto is likely to miss. Similarly, if the gap is too small the contact points will be separated too soon with the ignition timed at full retard, and consequently the spark will be weaker.

Briefly, these are the principal points which govern the size of gap which must be used, and though magnetos will operate with gaps smaller than the manufacturer advocates, a common form of trouble almost invariably results—though it seldom is attributed to the right cause—in the burning of the spark plug points. This is due to the fact that up to a certain limit a magneto will deliver a hotter spark with a smaller gap, but in addition to burning the spark plug electrodes as a result, there also is grave danger of ruining the condenser. And it is here that the efficiency of the condenser bears on the size of the gap which must be used. When the gap is very small the arc which results when the current is interrupted continues longer than it does when the gap is larger. Theoretically, the condenser should damp out the arc; some are more efficient than others in this respect but none will damp it out entirely.

It is this arcing that burns up the magneto contact points. When the gap is increased, the time that the arc survives is reduced and the longevity of the contact points is increased.

How great is the diversity of opinion regarding the proper gaps that should obtain is shown by the following table of sizes recommended by several magneto manufacturers:

Magneto	Gap	Plug Gap
Pittsfield .....	.016	.031
Simms .....	.019	.031
Bosch .....	.019	.019
Heinze .....	.020	.020-.025
Connecticut .....	.020	.0625
Splitdorf .....	.031	.020
Remy .....	.031	.031
Pfanzstiel .....	...	.031

Naturally, the size of the gap between the electrodes of the spark plugs will be governed largely by the character of the spark delivered by the magneto. Thus the Pittsfield magneto delivers a fairly long spark and consequently the manufacturers recommend that the spark plug gaps be just about twice as large as that in the magneto. The Simms Magneto Co. advocates a similar relation of magneto and plug gaps, but the Bosch Magneto Co. requires that they be the same. As a matter of fact, a number of other magneto manufacturers advocate that magneto and plug gaps be the same, but the rule does not hold good in all cases. The Connecticut Telephone and Electric Co., for instance, recommends that plug gaps be three times as large as that in the magneto.

Regardless of what manufacturers recommend, however, it is not possible to specify any particular size of plug gap for any make of magneto, for the reason that there are too many other factors which in practice have upset theory. Thus it has been found in not a few cases that a certain plug gap which works well when the plugs are located over the intake valves may be entirely wrong when the plugs are located over the exhaust valves. Similarly, though a plug gap of the same size as that between the contact points in the magneto may give the best results in an engine in which the plugs are in side pockets, it may be necessary to increase it or diminish it slightly to obtain equally good results in an engine in which the plug electrodes project directly into the cylinder.

Actually, the best size of plug gap to use can only be determined by experiment. The size of the gap between the contact points in the magneto, however, never should be varied from what the manufacturer recommends. Even the slightest increase or decrease in the size of either gaps may have a most decided effect on the operation of the engine, and though the average individual scarcely can be expected to measure so small a gap as one of .016 of an inch, for instance, nearly all manufacturers supply gauges with their instruments for the purpose of establishing the proper setting of the points.

RUTENBER IN UNIT POWER PLANT

Time-Tried Engine Rendered Available in Most Modern Form—Distinctive Valve Mechanism is Retained.

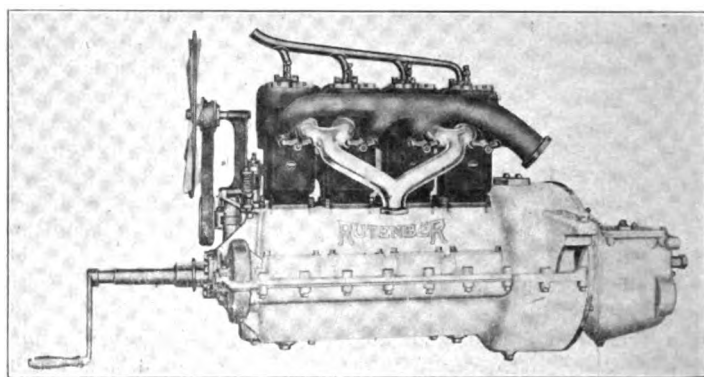
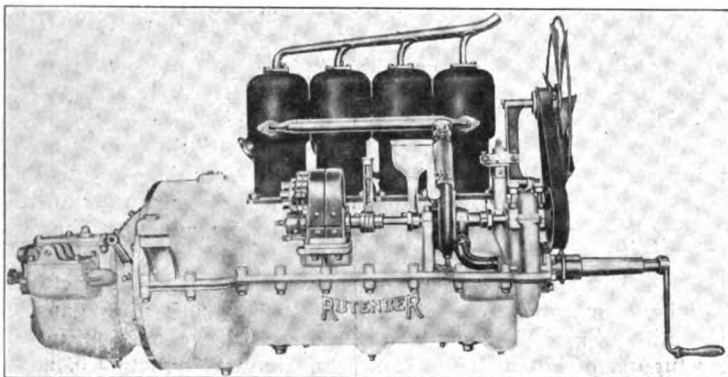
Supplementing its announcement of some six months ago when the Model X 30-horsepower Rutenber motor formally was placed on the market, the Western Motor Co., of Marion, Ind., now announces

each pair of valve push rods. The valve actuating mechanism is peculiar to the products of the Western Motor Co., and is shown partly in section in the accompanying illustration. Instead of the orthodox valve mechanism in which the valves are actuated directly from the cams, a forged arm or lever is interposed between the push rods and the cams, the purpose of the arrangement being to quicken both the opening and the closing of the valves. Incidentally as this method permits of a

frame "weaving," the new unit is arranged to be supported at three points in the chassis.

French Court Decides Against "Guest."

Following closely upon the decision of the highest German court, according to which a guest accompanying the owner of an automobile on a tour or trip without paying for the accommodation cannot collect damages in case of accident, the French Superior Court has gone even further and



INTAKE AND EXHAUST SIDES OF THE NEW RUTENBER UNIT POWER PLANT

the evolution of the same motor into a unit power plant. Though in the main the new motor very closely resembles previous practice as exemplified in the older Rutenber motors, and for this reason is of interest to the trade in general, chief interest centers around the fact that this is the first time the Western Motor Co. has turned its attention to the production of a unit power plant.

Practically the only change in the accepted design of the 30-horsepower motor which has been made in bringing out the new model is in the crank case. This has been redesigned and made longer to provide for the housing in of the flywheel and the attachment of a standard type of change gear mechanism. As is the case with all the other members of the Rutenber family, the separately cast cylinders which have become a distinctive mark of the line are retained, the bore and stroke being $4\frac{1}{8}$ inches and $5\frac{1}{4}$ inches, respectively. Cylinders are cast of a special grade of semi-steel and are carefully treated both before and after machining.

Another of the characteristic features of the Rutenber motors which is apparent in the Model X unit, as it is styled, is the arrangement of the magneto and water circulation pump on the same side, both of them being actuated from the same shaft which in turn derives its motion from a vertical shaft which carries the timer at its upper extremity. This vertical shaft carries the oil pump at its lower end and is rotated by means of spiral gears from the crankshaft.

The cylinders are of the L-head type, all the valves being arranged on one side and enclosed by individual removable plates for

closer adjustment of valve tappets a greater degree of silence also is included among its advantages.

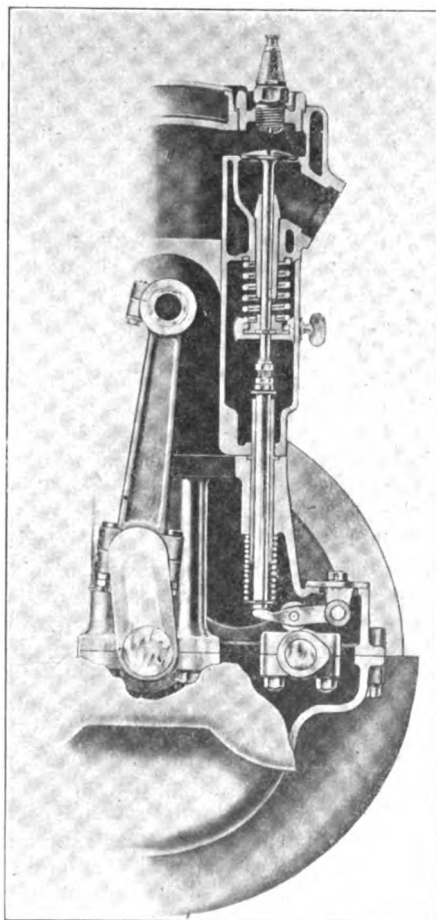
Conforming to the general tendency to make provision for a certain amount of

declared that any one accepting an invitation from an automobile owner to take a seat in the latter's car, thereby accepts all the risks connected with fast traveling. The court's opinion differs from the German idea insofar as it makes an attempt to declare what may be considered "legitimate" or inherent risks in motor traveling.

In the French case in question the driver of the car sent it down a long hill at a speed of over 50 kilometers an hour, in order to gain sufficient momentum to climb an equally long and steep incline immediately thereafter. At the bottom of the hill the car swerved and upset, severely injuring the guest in the tonneau and mortally injuring the driver. The guest sued for damages, charging that a speed of 50 kilometers an hour down hill could only be considered a result of gross carelessness on the part of the owner or his driver. The court found for the owner, deciding that not only did the guest not pay anything for the accommodation, and had therefore no cause for damages, but also that the driver was perfectly justified under the conditions to get whatever speed he could out of the car, in order to reach the top of the hill in the shortest time.

Effect of Freezing of Water Pump.

The refusal of a motor to start often may be traced to a loose or broken timer or magneto shaft coupling. Though such troubles seldom are looked for and are infrequent occurrences in warm weather, the advent of cold weather makes them much more likely, inasmuch as water pumps, driven from the same shafts as such devices are unprotected and freeze up easily.



RUTENBER VALVE MECHANISM

DISAPPEARING SEATS FOR NEW KLINE

They Constitute a Striking Novelty in York Product—Four Speed Gear Adopted for All Four Chassis.

Simplification of design, greater strength of construction, a general refinement of the details calculated to increase the comfort of passengers, and the adoption of four speed change gear mechanisms on all models are the principal features which mark the extensive line of Kline cars for the coming season, announcement of which just has been made by the Kline Motor Car Corporation, of York, Pa., into which Virginia capital and several Virginia capitalists recently were introduced, with the result that a plant now is being operated in Richmond,

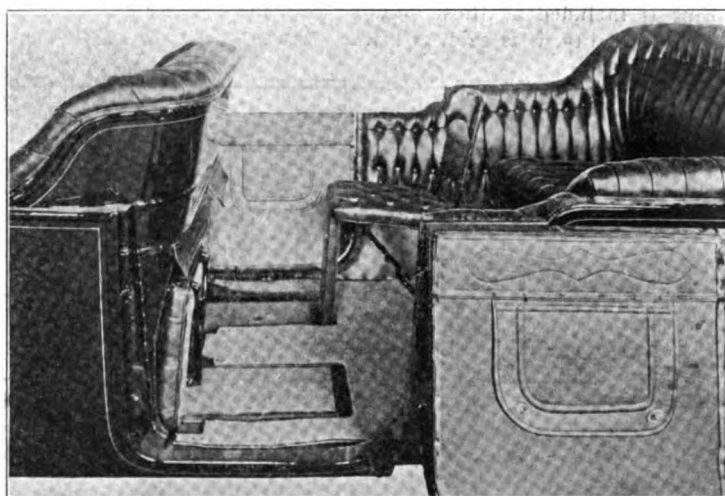
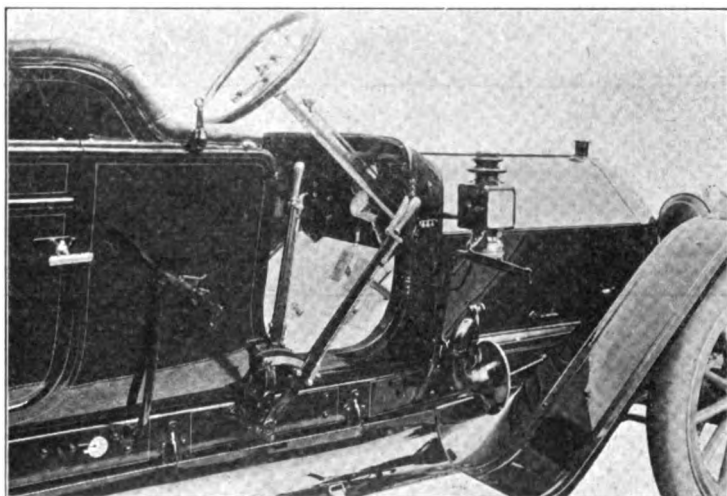
jacketing, vertical cellular radiators and centrifugal pumps. Indicative of the attention which has been given the desirable feature of accessibility, the construction of the radiators is such that tubes readily may be removed for repairs or replacement.

The lubrication system used in the "6-60" is common to all the motors and is by splash, a constant level in the crankcase compartments—one for each cylinder—being maintained by gear driven pump in the crankcase. The main oil reservoir is located below the crankcase compartments and from this the oil is pumped through a sight feed glass on the dash and thence to the crankcase through a distributing pipe with branches to each of the compartments. The level of the oil in the compartments may be raised or lowered according to the requirements of the motors.

Ignition on all the models is accomplished by means of two separate systems,

tion and increase its longevity and embrace a slight enlargement of the gears and the use of heavier shafts. As heretofore gear changes are made selectively by means of a side hand lever and the orthodox type of gate quadrant, third speed being direct drive and fourth an overstep. Clutches remain unchanged, the same type of leather-faced cone member being used in all models. To facilitate gear changing a clutch brake is fitted

The full-floating type of rear axle is employed on all models, the casing containing the differential and the live axle being all in one piece. The whole differential mechanism with its bearings may be removed bodily from the housing without the necessity for disturbing adjustments. The brakes in each case are of the internal expanding type and both sets are mounted on the rear wheels. In making provision for adjustment for wear the necessity for ac-



TWO VIEWS OF NEW KLINE CAR SHOWING CONTROLS AND DISAPPEARING SEATS

Va., also. Though the line has been slightly depleted by the removal of one car, the four cylinder 30 horsepower model, there still remains considerable latitude for choice in that four other distinct chassis remain, and on them are mounted a variety of body types which gives a total of no less than 17 types of car. These four chassis embrace two six cylinder models, one of 50 horsepower and the other of 60 horsepower, and two four cylinder models of 30 and 40 horsepower, respectively.

Except for slight changes, the motors remain the same, the cylinders in the three larger sizes being cast in pairs, and those in the "4-30" being separate. In the three larger models the valves are located on opposite sides and are interchangeable, and in the 30 horsepower motor the valves are located on the same side. In both the six cylinder motors the arrangement of the cylinders is such that the rigidity of construction possible only by the use of a crankshaft bearing between each is obtained. Water cooling is employed in all the motors, the system being the same in each case and embracing liberal water

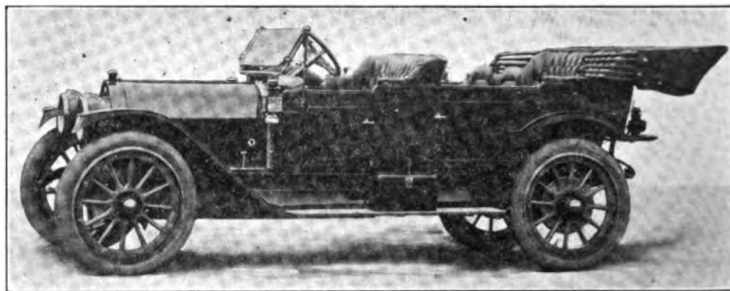
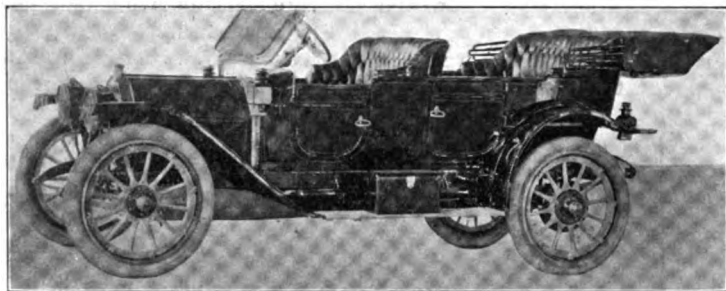
including a Bosch high tension magneto which operates through one set of plugs, and a single unit coil and distributor which operates through separate plugs. Dry cells furnish current for the coil system, the distributor being located on a vertical shaft and actuated through gearing from the valve gear train. The distributor itself is unusual in that its moving parts operate in an oil bath and are completely housed by means of an oil-tight cover. Single platinum contacts serve for all four or six cylinders as the case may be. To increase the flexibility and easy starting quality of the motors in cold weather, the carburetors of the three larger models are water jacketed; the carburetor on the 30 horsepower engine is arranged to be supplied with hot air by means of a connection to the exhaust pipe.

Regarding the transmission elements, the same type of four speed change gear mechanism which last year constituted one of the features of the 60 horsepower model has been adopted for all the others. Such slight changes as have been made are calculated to increase its "sweetness" of ac-

cessibility has not been lost sight of, and to this end the adjusting nuts have been placed outside the drums where they can be reached quite easily.

As already has been stated, the design of the several body styles is indicative of more than a little thought with the aim of increasing the comfort of passengers, one of the striking features in this respect being the unique manner in which the obliteration of auxiliary seats is effected when they are not required. When they are not in use they disappear entirely beneath the front seats, the method of mounting them being shown in the accompanying illustration. The upholstery in all the bodies has been made thicker and softer and the seat cushions have been redesigned so as to provide the easiest of positions.

The wheelbase of the 60 horsepower car has been increased from 128 to 130 inches, which permits the use of slightly larger bodies. Conforming to usual practice, all bodies are equipped with front doors and their presence in really hot weather is rendered less obnoxious by the use of liberal sized ventilators let into the dash. On the



THE 4-40 FIVE PASSENGER KLINE AT \$2,250 AND THE 6-60 AT \$3,500

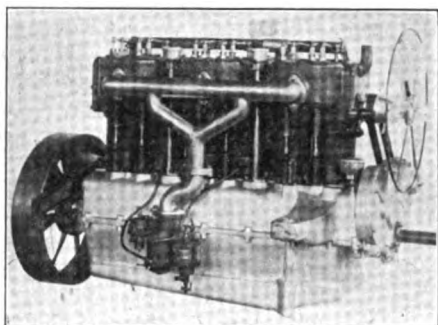
"6-60," wheel sizes have been increased to 38 x 4½ front and rear and tires are mounted on Firestone quick detachable and demountable rims. Though the price of the car has been increased slightly, the touring, small tonneau and roadster listing at \$3,500 for the first two and \$3,200 for the last, as against \$3,250 and \$2,950, which were the prices last year, considerably more equipment is included at these figures and the price in reality, it is said, is lower. Stand-

same equipment, the car is furnished in five passenger touring, small tonneau and roadster styles, at \$2,850 for the two former bodies and \$50 less for the latter.

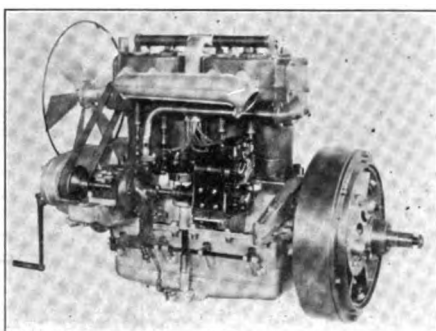
The motor in the four cylinder 40 horse-

For the five passenger touring car and the toy tonneau the price is \$2,950 and the roadster lists at \$2,200. For those who so desire, this car also is built to order with a three speed change gear mechanism and a roadster body at a reduction of \$75.

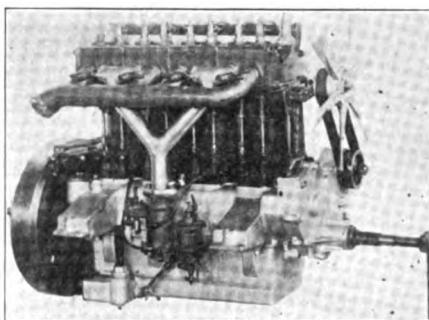
Separately cast cylinders are used in the "4-30" motor, which differs from the others in that it is of the L-head type. Otherwise, it differs but slightly from the larger motors, lubrication, ignition and cooling being



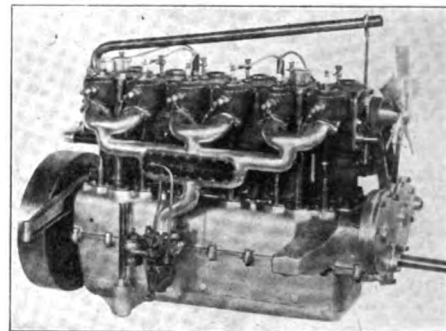
CONSTRUCTION OF 6-60



VALVE SIDE OF 4-40



KLINE 4-30 MOTOR



THE 6-50 IN PERSPECTIVE

ard equipment includes "semi-duquesne" silk mohair top, side curtains and dust hood, windshield, combination oil and electric side and tail lamps with six volt 80 ampere hour storage battery, pump, jack and tools.

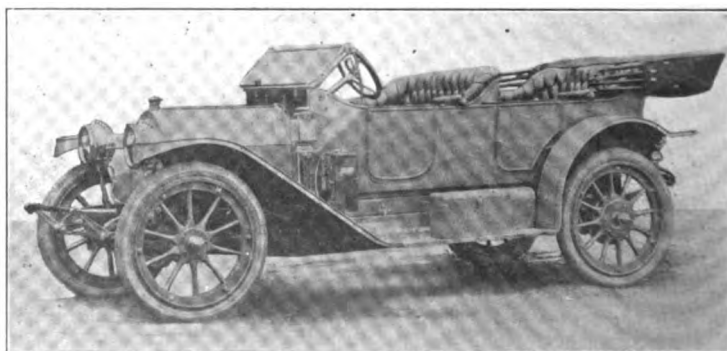
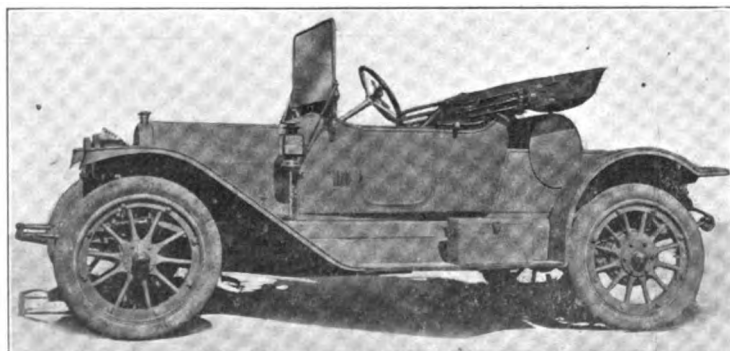
Except for a difference in the size of the cylinders, which measure 4 3/32 inches bore and 5 inches stroke, the six cylinder 50 horsepower model is nearly identical in construction and detail with the larger model. The wheelbase has been increased to 126 inches and tire sizes also have been increased to 36 x 4½ all around, which was the size used in the rear only last year, the front tires measuring 36 x 4. With the

power car is the same in construction and design as that in the "6-60," except that it has two cylinders less; the bore and stroke are 4¼ inches and 5½ inches, respectively. The wheelbase of this car also has been increased slightly and now is 118 inches; tire sizes are 36 x 4 for both front and rear.

effected in the same manner as is common to the others. The cylinder measurements are 4 inches bore and 4¾ inches stroke. In five passenger and small tonneau touring car form, the list price of the car is \$1,750; the two passenger roadster lists at \$50 less, all of these prices including equipment similar to that supplied with the other cars.

Eight Thousand Trucks in New York.

According to a statement made by Secretary of State Lazansky, in a recent public address, there are 8,000 commercial motor vehicles registered in the State of New York. Of this number 60 per cent. are in use in the metropolitan district.



NEW 4 CYLINDER 30 HORSEPOWER KLINE CAR IN SMALL TONNEAU AND ROADSTER FORM

TRIPLE JET IN ONLY CARBURETTER

Original Features of Device Invented for Big "One-Lunger"—Now Adapted to All Types of Motor.

One of the original features of the Only car, which, as originally developed by the Only Car Co., was propelled by a single-cylinder engine of $5\frac{1}{8} \times 10$ -inch proportions, was a triple jet carburetter. Such gratifying results were achieved with this invention under the trying conditions imposed by the big "one-lunger" motor that it was tested on a four-cylinder 50-horsepower car of entirely different construction. Its economy was marked. Whereas formerly the second machine had showed no better than six miles to the gallon of gasoline, with the Only carburetter it developed as many as $11\frac{1}{2}$ miles to the gallon. With more than a $33\frac{1}{4}$ per cent. increase in mileage it is claimed that upwards of 20 per cent. more power also was developed. The results were so marked that it was deemed advisable to put the device on the market independently and it is now being introduced by the Only Car Distributing Co., of New York City.

As is indicated by the accompanying illustration, the arrangement is that of a triple jet, or "three-speed," adaptation of the familiar aspirator principle. The three jets are arranged side by side, drawing from a main which is fed from the float chamber, M, in the usual way. By means of poppet valves, which are controlled by the movement of the throttle lever, however, the outlets from two of the mixing chambers are closed while the engine is being started or when it is running under very light loads. As the throttle is opened the second and third jets are thrown into action progressively, through the opening of their respective mixing chambers to the main delivery chamber.

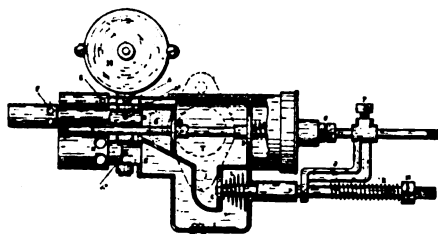
The low-speed, or starting jet, is the upper one in the illustration, lying next to the float chamber. The nozzle is mounted in a straight induction tube which terminates in the main mixing chamber, immediately back of which is shown in dotted outline, at T, the intake to the engine. This jet and mixing tube, constituting an elementary carburetter, is constantly in operation.

At the first outward movement of the throttle lever the valve, B, is lifted from its seat, permitting air to flow through the second mixing tube, entering at openings in its back end and flowing over the second jet. As the engine accelerates and the suction increases more air is admitted through an opening, G, which normally is closed by a spring or reed. The added component of mixture thus formed joins that supplied by the starting jet.

Further throttle movement causes an arm

offset from the main stem to press against a spring, K, and thus lifts the valve C from its jet, overcoming the resistance of a second spring which ordinarily holds it in closed position. This has the effect of causing air to be drawn over the third jet, which supplies a relatively rich mixture at first, later to be compensated by the action of a second "breather" or automatic reed valve. The final throttle movement opens a third poppet valve, D, which admits an auxiliary supply of air to the mixing chamber and thus overcomes the enriching tendency of the maximum suction obtained.

In explaining its advantages the manufacturer claims that, in addition to affording smooth-running and economical results, it is noteworthy in that it is not automatic. Its action throughout, as is indicated, is wholly mechanical—the action of the reed air inlets not being classed with the ordinary suction air inlet, it appears. On this account its performance should not be sub-



ject to the irregularities which in so-called automatic instruments sometimes give rise to difficulties.

Demountable Rims for Wire Wheels.

Wire wheels with demountable rims have been thought of as a combination much to be desired ever since the wire wheel began to claim the serious attention of builders of modern automobiles, but no one on either side of the big pond seems to have hit the solution of the problem until W. N. Booth, inventor of the well known Booth demountable rim, worked out a design that has the appearance of being the right answer. Several of the new wheels just have been shipped from the Booth Demountable Rim Co.'s factory in Detroit. In order to apply the Booth rim to a wire wheel, the latter is fitted with a flanged steel felloe which is similar to the channel rim fitted to artillery wheels equipped with Booth rims. The wire spokes are secured direct to this channel, upon which the demountable rim is placed exactly as on the wood wheel.

No changes have been made in the worm-and-gear rim locking mechanism, which has no loose bolts, nuts or other parts to take off and which is operated by a brace included in the outfit. The rim has a close, solid bearing on both flanges of the channel all the way round, and the three equally spaced locks not only hold it firmly in position, but draw it off easily no matter how tightly it may be jammed in position, through the powerful leverage of the worm gearing.

NICKELING WITHOUT ELECTRICITY

German Claims to Have Solved Problem With Galvanit—Powder, Water and Friction All That is Necessary.

How properly to nickel plate a piece of iron, steel or copper without the use of cumbersome and expensive electric apparatus, has been a dream of the inventor for many years. Many so-called "compositions" have been offered, but none of them proved capable of serving the purpose. Quite recently, however, M. A. Rosenberg, a distinguished German chemist, is credited with having discovered a method of covering metals with layers of tin, nickel, silver or cadmium by an electrolytic process which is absolutely independent of batteries, electric current, electrolytic solutions, etc. The necessary electric current is developed by humidity and friction while supplying the powdered coating metal to the cleaned surface of the metal to be covered.

The secret of Rosenberg's success lies in his discovery of a metallic mixture which will not attract humidity from the atmosphere, while stored, but which will set up electrolytic action immediately upon contact with water. For this reason the powder composition is mixed with certain inert substances, the object of which is nothing more than the protection of the effective particles of metal from humidity. To create the electrolytic action necessary for obtaining a smooth, serviceable coating of nickel small quantities of electro-positive metals, such as zinc, magnesium and aluminum, in the very finest powdered state, are mixed with the oxides or salts of the metal to be deposited.

For instance, if it is desired to nickel a plate of copper, the surface of the copper is dampened and the powdered composition sprinkled over it. The composition, in this case, would contain nickel oxide, finely powdered magnesium, and some powdered inert material such as infusorial earth. Immediately on contact with the water innumerable minute electric currents are created, by the aid of which tiny particles of metallic nickel are deposited upon the copper, forming a dense layer of nickel. It is this creation of electric current of very small intensity by means of the powder itself, which constitutes the novelty, for it long has been known that deposits of silver, mercury, etc., could be made upon polished surfaces by rubbing the oxides or salts of these metals upon the surfaces to be coated. The mere sprinkling of the powder on the copper surface, of course, does not create a perfect coating; in order to obtain this the powder must be rubbed in with a soft rag. During this friction a process of amalgamation takes place, and a homogeneous coat is formed, ready for pol-

ishing or buffing. The more powder that is placed on the rag, and the longer the rubbing is continued, the thicker the layer of metal coating becomes. It is even possible to produce beautiful designs by this method on iron, steel or copper; all that is necessary being a stencil, through the openings of which the nickel or silver is rubbed onto the metal to be covered.

Furthermore it is claimed that with the Rosenberg method it is unnecessary to first cover iron or steel with a layer of copper in order to cause the nickel to adhere properly; it is even possible to re-nickel damaged articles without removing the jagged coating or nickel still adhering to the surface. Simply by applying the powder and rubbing it hard into the metal, it is declared it will form a perfect connection with the old coating, impossible of detection even by the microscope.

In this connection it is stated that in none of the compositions is there any use made of cyanides, mercury salts or free acids; they are not poisonous and do not even stain the fingers. The powders are to be marketed under the general trade name "Galvanit," and may be obtained for the following processes: To deposit tin upon copper, brass, German silver, silver, iron, steel; silver upon bronze, copper, silver, German silver, iron, steel; cadmium (a rust preventive) upon copper, iron, steel, German silver, and nickel upon copper, iron, steel, brass, German silver, nickel.

Rambler's Great Manufacturing Record.

The Thomas B. Jeffery Co. believes that it has a record which has few parallels, in that since it was organized and started building Rambler cars in 1900, its plant in Kenosha, Wis., never has been shut down on a single working day, not even during the commercial depressions in 1903 and 1904 and in 1907 and 1908. The factory has been running at least 10 hours a day and many days over time, excepting for a single period of three weeks following the panic in 1907, when it ran eight hours a day. For 3,419 days this factory has been operated continuously, increasing in size from 60,000 square feet of area to more than 550,000 square feet of factory floor space. The factory site, including the half mile testing track, now covers 93 acres, while the pay roll has been increased from 100 to 1,700 men on Monday last, the largest pay roll in the history of the business.

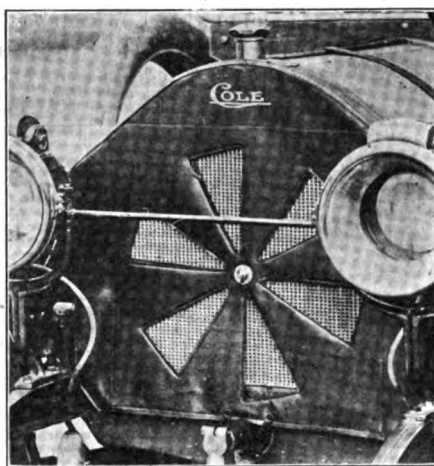
Economy of Old Shoes in Winter.

One way to economize in the matter of tire expense is to use old, ragged, patched and re-treaded shoes in winter and save the good ones for summer use. The philosophy of this is that a patched shoe in all probability will give out in some weak spot long before it is actually worn out, so that it will run practically as long in winter as in summer. A good shoe, on the other hand, will have its useful life shortened by the friction of icy road surfaces.

NO MORE LAP ROBES FOR RADIATORS

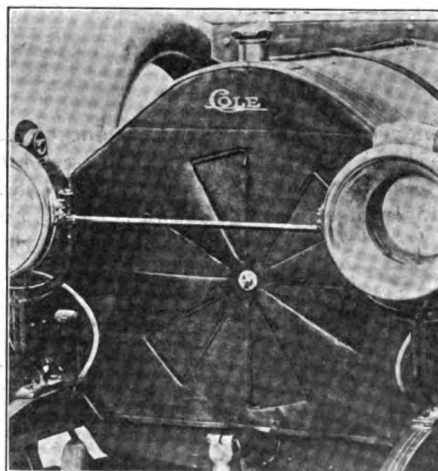
Indiana Inventor Evolves Device to Retain Heat of Engine—Forms Antidam Company to Make It.

When the horse was replaced by a motor and the whip socket taken off the dashboard to make room for a sight feed lubricator, it was fondly hoped that everything equine had been removed from the auto-



ANTIDAM RADIATOR COVER, OPEN

mobile and that the carriage had been completely emancipated from things horsey. But no sooner did men begin to drive their cars in winter than they found it advisable, when they halted, to throw their lap



ANTIDAM RADIATOR COVER, CLOSED

robes over their radiators to keep them warm, exactly as they had made shift to protect their horses under similar conditions. And the practice has persisted to a great extent despite the great advance of the automobile.

Taking advantage of the fact, the Antidam Manufacturing Co., whose name must be quite proper because it is incorporated under the laws of the State of Indiana, has brought out a device designed to relieve the motorist from the necessity for thus

decorating his radiator with a lap robe when leaving his car standing in cold weather, and to prevent over-cooling when Old Boreas blows.

George Bott, of Indianapolis, is the inventor of the device, which is styled the Antidam heat-retaining radiator cover, and which consists of a shield of heavy Pantasote backed by sheet metal to give stiffness and prevent displacement by the frisky breezes; also it is fitted with six shutters which can be adjusted to any desired opening, thus providing a means for regulating the volume of wintry atmosphere admitted to the radiator, as shown by the accompanying illustrations. In placing the cover on the market the manufacturers make the most of the fact that even if a radiator does not freeze when carelessly left out in the cold with no protection, the motor is much harder to start than if kept warm and comfortable. Moreover, a radiator capable of adequately cooling a motor in hot weather can cool it excessively in winter, appreciably reducing the power output.

The top of the Antidam radiator cover is slipped over the radiator cap and the bottom is strapped to the starting crank bracket or other convenient point of attachment, and forms a permanent part of the car's winter equipment.

George Bott, the inventor, will be secretary, treasurer and general manager of the company, which has been incorporated under Indiana laws with a capital of \$10,000. R. P. Irwin, J. M. Irwin and George Bott are the incorporators. Manufacturing operations have been commenced in Indianapolis.

When Turpentine is Better Than Oil.

A motorist who, like many others of his kind, had used a mixture of graphite and oil to make a tight joint where the bearing surfaces were narrow, and who found that he could not keep his joints tight by this means, hit upon the idea of mixing the graphite with turpentine instead. The scheme worked like a charm. He also used the mixture to rub on his exhaust manifold when he wanted it to look nice, applying it with a piece of waste while the pipe was hot. The result was highly satisfactory, and though the polished black finish was not by any means permanent, it was so easily applied and so cheap that the shortcoming could be overlooked.

Cleaning Aluminum With Weak Acids.

It has been suggested that aluminum surfaces that have become dull and unsightly may be cleaned up by the application of a 10 per cent. solution of sulphuric or muriatic acid applied with a stiff brush and afterward washed off with clean water. Though there is little doubt of the efficiency of this method, great care should be taken not to get the compound on the skin or clothes. The paint and nickel will also suffer from the affects of the acid. The best way is not to use acid at all, but soap.

PULLMAN LAUNCHES A "SIX-SIXTY"

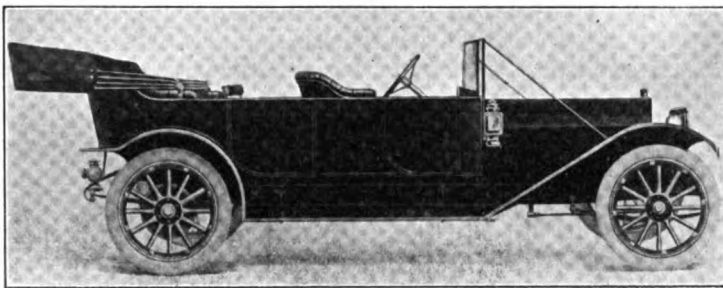
**Also Adds a Brand New "Four" Model—
Full Equipment Includes Self Starter
and Electric Vulcanizer.**

Further extending its already complete line of pleasure vehicles, the Pullman Motor Car Co., of York, Pa., has launched two brand new models—one of them a 60 horsepower six cylinder, the other a 40 horsepower "four"—and these, with the older 30, 35 and 50 horsepower four cylinder models, will comprise the company's offering for the coming season. The continuance of the three last named models with changes

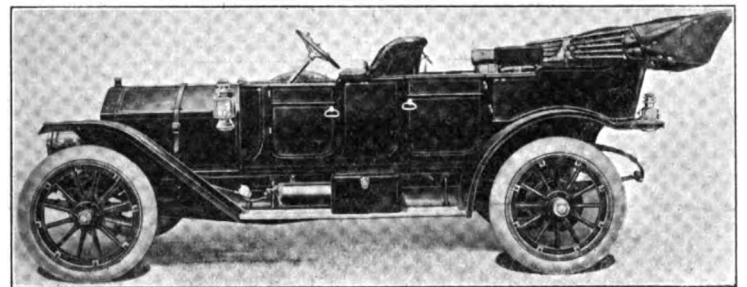
Naturally chief interest centers on the six cylinder car, inasmuch as this is the first time that the Pullman company has turned its attention in this direction. Though it is essentially a new creation and as such incorporates a number of features not found in the others, it still retains many of the distinctive touches which mark the other and older cars that bear the Pullman name plate. Thus, though the cylinders are of the T-head type, in conformity with previous Pullman practice, they are cast in pairs instead of singly, both the new motors being built in this way. As a matter of fact these two motors are identical, except that the "four" has two cylinders less than the "six," and a description of one therefore suffices for both. Cylinder dimen-

ism and full-floating rear axle, the component parts of the transmission being so arranged that a straight-line drive is obtained under normal service conditions. Both sets of brakes operate on the rear wheel hubs, the service brakes being internal expanding and the emergency brakes external contracting. An unusual feature of construction is that the service and emergency brakes operate on separate drums, between which there is an air space to insure maximum heat radiation. The diameter of the drums is approximately 16 inches and the width is $2\frac{1}{4}$ inches; both brakes are lined with Thermoid brake lining.

The diameter of the wheels on both the new models is 36 inches, though those on



SELF-STARTING PULLMAN 6-60, \$2,750



SELF-STARTING PULLMAN 4-50, \$2,700

which are so slight as to be scarcely noticeable is evidence that very little improvement in design or construction was found possible. Therefore they will remain in the same form that has proven thoroughly dependable and efficient during the past year.

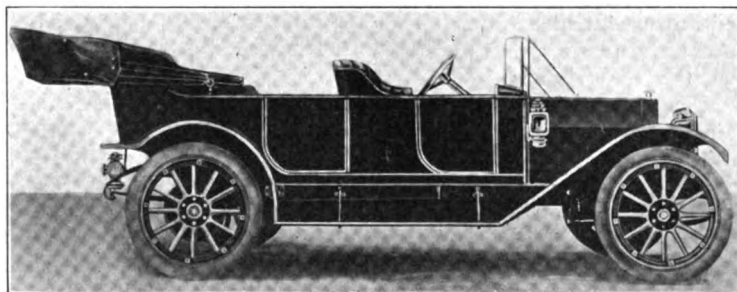
Almost of equal importance to the announcement of the two new cars, is the information that, departing from the usual Pullman custom in this respect, their purchase prices will include full equipment.

sions are $4\frac{1}{2}$ inches bore and $5\frac{1}{2}$ inches stroke, the disposition of the valves on either side permitting the location of the magneto on one side and the water pump on the other, this arrangement allowing of a more even distribution of the driving strain on the timing gear train from which both are driven.

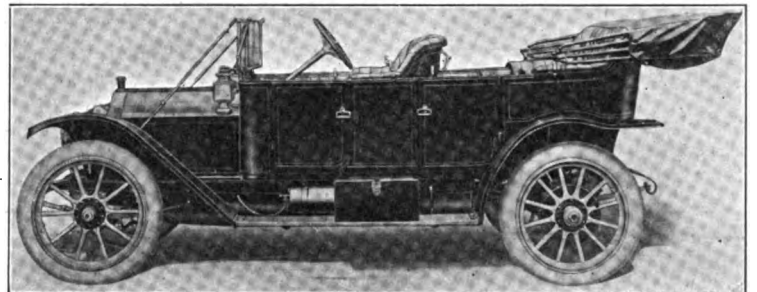
Having given satisfaction for a number of years, the Pullman pump-over splash lubricating system is retained, but has been improved in that the oil level adjustment

the "60" are fitted for $4\frac{1}{2}$ inch tires and those on the "40" for 4 inch tires. The wheelbase of the six cylinder car is 138 inches and that of the "40" is 122 inches. Semi-elliptic springs in the front and three-quarter elliptic in the rear are used on both models, the front and rear spring on the larger car being 2 and $5\frac{1}{2}$ inches longer, respectively, than those in the 40 horsepower car.

The six cylinder chassis is regularly supplied with seven passenger touring, small



SELF-STARTING PULLMAN 4-40, \$2,150



PULLMAN 4-30 TOURING CAR, \$1,675

And that it is full in a fuller sense of the word than usually is supposed, is evidenced by the fact that not only is a self starter and an electric lighting system included with both of the new models, but a distinct departure is made in the inclusion of an electric tire vulcanizer as well in the equipment of the six cylinder car. The other items of equipment, common to both, embrace such standard features as demountable rims, windshield, speedometer, robe, coat and floor rails, pump, jack, tools and top with dust cover.

has been placed on top of the crankcase and is much more easily "get-at-able" than when it was at the bottom of the crankcase. On all models the timing gears are of the spiral type and those in the two new motors operate in oil instead of in grease, which is the case in the older motors. Ignition is effected by a Bosch high tension magneto dual system in which dry cells are used for starting.

Power is transmitted to the road wheels by means of a leather faced cone clutch through a four speed change gear mechanism

tonneau and roadster bodies at the list price of \$2,750. It also is fitted with coupe, landaulet and limousine bodies. The same styles of body are supplied on the four cylinder 40 horsepower model in addition to a five passenger touring body; the price for the open cars is \$2,150.

As has been stated, the changes which have been made in the other three older models are so slight as to be negligible. They differ from the new models principally in that, with the exception of the "30," their motors have singly cast cylin-

ders, lubrication and ignition being effected in the same manner as in the new cars. The four cylinder 35 horsepower car has a motor in which the cylinders measure $4\frac{1}{2}$ x $4\frac{1}{2}$, and is regularly supplied in five passenger touring, small tonneau and roadster form, the details of construction in regard to transmission being the same as the new models. For that matter, all the other cars are the same as the new models in respect to their transmission components.

In the 30 horsepower car, the cylinders measure $4\frac{1}{16}$ x 5 inches and are cast in pairs. Five passenger touring, small tonneau and roadster bodies are mounted on this chassis, and the price with either of the open bodies is \$1,675; coupe, landaulet and limousine bodies also are fitted to this chassis. The cylinders in the motor of the 30 horsepower car are cast separately, the bore and stroke being $5\frac{1}{4}$ inches and 6

SIMMS TO MAKE SEEBRIGHT HERE

**Will Reproduce British Ignition and Lighting System at Bloomfield Plant—
Differs Radically from Others.**

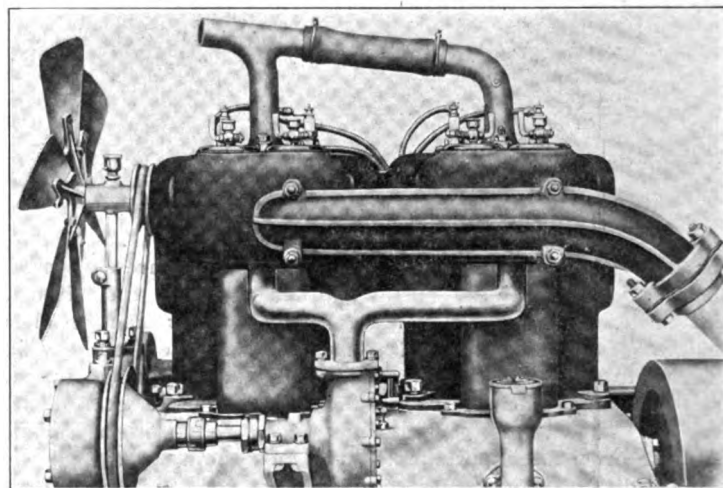
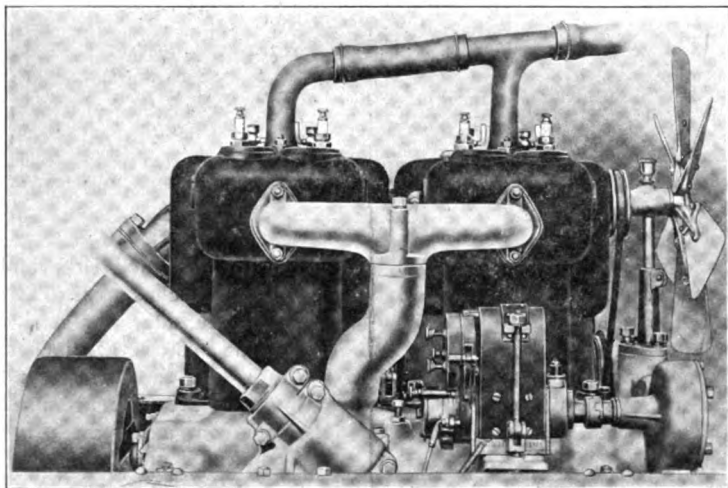
Very shortly the American trade and public will be afforded the choice of another combined lighting and ignition system—the Seebright, which will be placed on the market by the Simms Magneto Co., of Bloomfield, N. J. It already has made its appearance abroad where it was brought out by the Simms English company, but active preparations are being made to reproduce it on this side.

The instrument differs radically from the familiar type of high tension magneto, or the combined magneto and dynamo, in that

is completely enclosed in an aluminum housing, all the moving parts being thoroughly encased. At 1,000 revolutions a minute, the output of the dynamo is 100 watts, the voltage being $8\frac{1}{2}$, and the amperage 12. An automatic magnetic cut-out switch serves to maintain the dynamo in connection with a storage battery except when the speed of the armature drops below a certain limit.

Effect of Large Tires on Taxicabs.

While tire manufacturers for some time have urged the use of large tires as a means of real economy, what it really amounts to in every-day work was shown by the experience of the company which operates the "yellow taxicabs" in New York City, the manager of which declares that since the adoption of $4\frac{1}{2}$ -inch tires for the 32 inch wheels, tire troubles have been reduced and tire efficiency has been increased



INTAKE AND EXHAUST SIDES OF THE PULLMAN 4-40 MOTOR

inches, respectively. For a five or seven passenger touring body, or a roadster body on the 50 horsepower chassis, \$2,700 is asked, the price being slightly higher for coupe, landaulet or limousine.

Racing Drivers Engaged to Aid Dealers.

In the endeavor to induce Cole agents to maintain service stations on service departments for the users of Cole cars, the officials of the Cole Motor Car Co., are employing the drivers of their racing cars to good purpose. These drivers are circulating in various parts of the country instructing the mechanics employed by Cole agents in the fine points of the car and how best to get the happiest results. Thus Harry Knight now is doing this work in the South, while Johnny Jenkins will be kept on the California coast for at least two months and then moved to some other point. "Con" Tucker also has already made several trips in various directions with the same purpose in view. Officers of the Cole company and the Henderson Motor Sales Co., which markets the Cole output, are also personally visiting their dealers, with a view of instilling the service idea.

two separate armatures are employed. For the fields, eight magnets arranged in four rows of two superposed are used, and between their twin pole shoes the two armatures rotate, one above the other. The lower armature generates current for the magneto ignition and is of the accepted double-wound high tension type with the exception that the high tension slip-ring, from which the current is passed to the distributor, is carried at the non-driving end of the armature, and feeds the distributor through an external cable. The contact breaker, distributor and distribution gear are the same as in the ordinary Simms magneto.

Above the high tension armature is the second armature which is of the conventional drum-wound low tension type. This rotates at twice the speed of the high tension armature, from which it is driven by means of spur gearing. The low tension commutator is located at the driving end of the armature; carbon-copper brushes of the usual type are pressed against it by springs and serve to collect the current. The instrument is approximately of the same size as the regulation magneto and

by fully 100 per cent. According to his statement, the company's tire cost now is but three cents per mile, which he considers reasonable in view of the varied road conditions encountered by the cabs in city and suburban travel and the frequent sharp stops and starts.

Premier Produces Its First Truck.

The Premier Motor Mfg. Co., of Indianapolis, has added a truck to its productions. It is of the two ton class and in its essentials is a heavier reproduction of the Premier touring car. The first truck was exhibited in Indianapolis last week. Its braking surface is one of its features, providing 330 square inches, which is said to afford the most powerful brake in automobile use. It is also distinguished by Goodrich twin pneumatic tires on the rear wheels.

Steam Cars Good for "Automobilism."

They have even a Steam Car League in England. "Fairplay for Steam" is its motto and its chief object is "the encouragement of the use of steam as a means of automobilism," whatever that may be.

ELECTRIC HAS NOT FULLY ARRIVED

Belief That It Has So Arrived "Comforting but Fatuous," Declare Messrs. Martin—Room for Improvement.

"Has the electric vehicle fully arrived?" was the question asked and answered—in the negative—by T. Commerford Martin and Kingsley G. Martin, father and son, at last week's meeting of the Electric Vehicle Association of America at the Engineers' Club in New York. The senior Martin is renowned in the electrical industry and is now serving as president of the National Electric Light Association, while his son also has made a mark, being electrical engineer for the Ray D. Lillibridge Co., of New York. The question and the answer—a long one—comprised a joint paper which was read on the occasion and which handled the subject aptly and broadly. It pointed out wherein the electric vehicle has fallen short, wherein lies room for its improvement and how and why it has failed to "fully arrive."

After dealing with the attitude of the central station men and the manner in which some of them have grasped the opportunities afforded, while a larger number have failed to provide charging facilities or to otherwise assist the electric vehicle, and after remarking the necessity for an electric garage wherever there is an electric lighting plant, the Messrs. Martin said:

"These are broad considerations wherein we are likely to have the agreement of all of you when the assertion is made that the electric vehicle has not fully arrived. Another point upon which we are all likely to be in agreement is that an art is more or less conditioned by rival or sister arts. If the question were put: 'Has the hydrocarbon automobile fully arrived?' the answer would be a very decided 'No' and it follows as a corollary that however well satisfied we might be with the status of our own art, the electric vehicle can never reach perfection while it has this formidable rival in the field to measure up against."

"The records of the patent office, the results of trial runs, the pages of the automobile papers, the annual exhibitions, and our own daily observation all prove to us that the gasoline vehicle is still undergoing a splendid evolution, from which the electric branch of the art is indeed no small beneficiary. There is here quite a curious parallelism with the earlier phenomenon familiar to those whose lives have been spent in the field of illumination, namely, the long struggle between gas and electricity, which has been of the greatest stimulus to both, but never more so than when competition has been friendly or now when so frequently and generally the two services to the public are under a common

administration or ownership. Competition and warfare are not seldom founded upon misunderstanding; and in the case of utilities and appliances, upon a misconception of the real function. No device arrives fully until its sphere is thoroughly recognized and defined, and until opposition ceases from those whose greatest gain will be in helping it onward.

"It certainly cannot be regarded as other than a good sign, so far as the future of the electric vehicle is concerned, that some of those who have been leading advocates and producers of the hydrocarbon types are looking with favor upon the electric type and undertaking its manufacture. To say the least, one of the deterrent influences from which the electric vehicle has suffered the most has been the 'knocking' it has had to endure not only from within but without. First of all, a new invention or article of commerce has to make good in establishing its right to exist as meeting some human want or necessity. That done, as in the case of the electric vehicle, the stage is reached where the occupancy of a definite domain must be determined; and that also appears to be in process of speedy accomplishment. The 'battle of types' is usually very slow in reaching its conclusion; just as every illuminant the world has known is still in use somewhere; while every kind of bicycle still runs the streets years after the introduction of the chainless. The electric types are probably much more various than they were two years ago; will probably be even more numerous two years hence; and will probably differentiate to a striking degree as uses become more varied."

"It is not unlikely that very few of us realize the possibilities before the manufacturer of electric pleasure and commercial vehicles and their constituent parts. The opportunity has always been there, but apparently it has been necessary for the gasoline car to show the way and do the pioneering work in many branches of the automobile industry. The reward, however, has been great, a reward that can just as well come to us if we but put ourselves to the task as did the other fellow. Some of the earliest successful self-propelling road vehicles were electrics and their modernized and some of the original designs are in use today. The cases where original design has survived, unaltered to any great extent, are, however, very few, and this alteration and redesigning has been assentation as the electric vehicle becomes more and more a real machine instead of an experiment."

"There are, however, many makers of electric cars, of both pleasure and business types, whose designs contain each year changes of considerable extent. Again, manufacturers are found entering the field with machines which from an engineering standpoint are truly disheartening. They seem totally to disregard tried and proven methods of construction, and are unable to

realize or foresee the operation of certain parts under service conditions.

"It would be well if every builder could spend a year or two driving cars as a paid chauffeur. He would learn some essentials that would last him a life time."

"In pleasure cars one is more apt to encounter fairly comfortable, correctly placed, and properly formed brake pedals, for instance, but on trucks the usual thing is an entirely inadequate contrivance, cramping the operator and exhibiting very little thought as to the comfort, convenience and safety of manipulation. Changes in design must of course occur, but they should be those which only could be shown desirable by operation in the hands of users, not those which are evident upon inspection to any one with mechanical training. We are building today pleasure cars having speeds up to 30 miles per hour which weigh at least a ton. Would anyone buy a gasoline machine with equivalent properties having a 'tiller' steer? No; and what is more significant, you couldn't if you wanted to. It is on such points that the designer of the electric vehicle could more than benefit by giving attention to gasoline car construction."

"It is true that we have made great technical progress of recent years, but an average of electric cars would show characteristic features that were abandoned by gasoline car makers long ago, and yet we are constantly striving to cover the entire field of the gas car, and do all that it can do, as swiftly, as surely and more safely, and with absolute assurance of ultimate success. In the meantime we do not progress as rapidly as we should, because makers employ obsolete and superseded methods in the worst cases and poorly designed systems in the average."

"We are not attempting to criticize the necessary work that is being done in solving the problem of chain or shaft, hub or spur drive, of two motors or one, of acid or alkali batteries, but wish to point out that it is in the steering gears, axles, brakes, control arrangements, etc., that established practice is to a large extent ignored. In the personal experience of the authors, for instance, two axles have broken. There were four distinct cases of fracture. The steering gear has disintegrated while calmly driving on a smooth avenue, hot bearings have developed many miles from home, controller leads have gone astray, and brakes have proved excellent when running backward but leaving much to be desired in their effect on forward motion, etc., etc. And yet we are staunch and optimistic believers in the 'Electric.' It is of interest to note, showing what can be done, that the commercial cars now performing the most exacting service anywhere in the world are electrics, and their design evinces a more than ordinary appreciation of real automobile engineering, and what really takes place when a heavy self-propelled vehicle travels at good speed over all kinds

of pavements, in all weathers, and with all kinds of drivers. Such machines in general are of the wheel-steer, single-motor, double side chain drive, ranging from 1,000 to 4,000 pounds capacity.

"Vehicles of this type handle United States mail between post office substations and railroad terminals, etc., penalizations being imposed for any delay over two minutes. In two years these wagons, one always in reserve, and one being overhauled, covered 689,819 miles, this being almost 40 miles per day per vehicle, counting the whole 26. In summer the mileage is minimum, reaching its maximum at Christmas, when the wagons are often in continuous service the whole 24 hours, changing drivers and batteries every eight hours. The total loads carried at this time are five times the actual capacity of the wagons. For this extraordinary 'limit' service the cost has proved to be for:

	Tires per Mile	Lead Batteries at .04 per Mile	Current K. W. H.
1,000 lb. wagons	\$.0076	\$.0221	\$.0211
2,000 lb. wagons	.0103	.0260	.0224
4,000 lb. wagons	.0218	.0404	.0258

"Total average cost of tires, batteries and current—\$.0658.

"Three makes of tires and two makes of batteries figured in this compilation. The current was all central station Edison service. The main difficulties encountered were sprung axles and broken straps and jars, nearly all being reported on the lighter, higher speed type.

"Pleasure (or business) cars are still either an open or closed affair. There awaits a large field to the successful builder of a convertible vehicle, not one that needs changing bodies or weighty additions, but one that offers weatherproof protection to the occupants and is instantly available at any time. The recent tendency toward a lowered center of gravity is to be much commended, as it is a step in a rational and forward direction.

"One of the problems that came to the attention of the authors this summer, as it must have done to many others, is that of ability to supply sudden or 'rush' orders. The fact was noted in October in the president's address that in the four cities of New York, Chicago, Boston and Philadelphia, in a few days, nearly 4,000 horses died of heat exhaustion, with a loss to the owners of about a million dollars. The appeal that went up immediately for electric trucks and delivery wagons was startling in its eagerness and insistence but it was not satisfied, and under the conditions never could be. There has been an insuperable difficulty in prompt supply. To what extent the solution of this problem lies in the present or the future one can hardly say, but it is at least pertinent to quote from a letter dated November 14, addressed to one of the authors of this paper, which says as to electric vehicles: 'We are going to manufacture eight standard classes—each with three different standard

lengths of frames—and varying in load capacity from 1,000 pounds to 12,000 pounds. These 24 standard classes will enable us to supply from stock a chassis to meet practically any requirement for a commercial vehicle within our range.' With this, it is stated, goes an ironclad guarantee as to maximum operating cost for a period of three years covering chassis, batteries and tires.

"We may let this go for what it is worth, and it has some potential value, and pass on to one or two other subjects. Of these, the most important from the technical standpoint is certainly that of standardization. The great national engineering societies have thrown much of their energy on this subject for many years past, and in our own field it is difficult to imagine just where we would find ourselves without the rules as to apparatus of the American Institute of Electrical Engineers, or the rules of the National Electric Light Association as to rating of arc lamps, overhead line construction or central station accounting.

"In the electric vehicle field we are merest tyros in regard to standardization, whether as to the technical details of the apparatus or as to the simplest principles of bookkeeping. One or two items may show the imprint of our work, one or two matters may have been brought to the basis of a common computation, which is what we mean by standardization, but outside of that all is chaos. Quite lately the authors have been impressed with the almost entire absence of data and curves in regard to any other feature of the industry except battery input and output. The whole tenor of the brilliant and incisive paper presented by Mr. Hayden Eames at our annual convention, on 'Impediments to the General Introduction of Power Wagons,' was along the lines of the present criticism, and then as was said by Mr. P. D. Wagoner in commenting on that paper: 'I think a great many people do not realize the absence of accurate information of the cost of horse service. There is reason for this, because when horses were practically the only method of transportation there was no reason for keeping the cost to compare with anything else. It was the best known.'

"That is well put, but today ours is the best known, and how little do we know definitely and finally? The paper of Mr. Eames itself showed the absence of basic data in citing the case of a man who instead of taking high priced central station current for his automobile, put in a gas engine generator set and cut his current cost down to one seventh. That sounds simply preposterous, but instanced in all good faith by a distinguished expert and engineer, it merely shows how far we are from fully arriving. There are, it is imaginable, many isolated plants, from which, under necessity, a man may charge his own vehicle economically; and if the local central station will not join issue, it deserves

to lose the business. But the acceptance as true of such comparative figures as those just cited as an instance, would be deplorable and disastrous in the ultimate effect upon the owner of the vehicle who found the facts so far from the proposition.

"The recent figures of the Census Office show that in 1909 there was an output of automobiles to the value of \$250,000,000. It is now perhaps far in excess of \$350,000,000. In the same year, it is reported, the value of the 3,639 electric vehicles produced was \$6,564,500, or 163 per cent. more than in 1904. It will be 1914 before authentic government figures are again available, but we all know that even since 1909 the whole industry has grown enormously and the electric end of it very remarkably. Inquiry would go to show a total value of electric vehicle output at the present time of \$40,000,000, and it has even been put by some authorities in excess of \$50,000,000.

"The statements of the manufacturers would be startling if they were not occasionally more than confirmed by reports from different localities as to vehicles in actual use. While this little paper was being written, one of the authors received from a well known central station man in Denver, a statement that there are at least 800 pleasure vehicles in that city, and although it is known that in addition there are several commercial types, it certainly comes with a sense of surprise to be told that Denver has so many. It strengthens one in the belief that the progressive West is altogether a leader in our field, but it also deepens the conviction that the electric vehicle is today by far the most rapidly advancing branch of electrical industry.

"General statistics over about 40 years go to show an average rate of growth in the electrical industry of 20 per cent. per annum, or double the rate of the country and if industry as a whole. The electric trolley or railway art has an annual growth of about 10 to 12 per cent., and this has been slightly bettered by telephony, but electric light and power has in all except dull years and periods of panic, maintained a rate of growth in excess of 20 per cent. But as we see, the electric automobile has a rate so far in excess of all this it is hardly reducible to a comparison. Maybe we are now, as sailors say, 'pulling in the slack,' and cannot determine real advance till the rope is taut. Such growth is at once our encouragement and our peril.

"In spite of frightful setbacks, due to reaching hasty conclusions from uncertain experiments, the industry has in reality forged steadily ahead, and the men who have contributed to such happy results as now confront us on every hand are entitled to our heartiest praise and our warmest admiration. It is they, doubtless, who would urge us now to redoubled effort and who would warn us above all things against the comforting and fatuous belief that the electric vehicle has fully arrived."



997,227. Automobilst's Tool. Frank S. Baird and William Peters, Congress, Ariz. Filed Dec. 5, 1910. Serial No. 595,834.

1. In combination, a lifting jack body comprising a base forming a tool spaced sides, a lifting member slidably mounted on said body, a lever, and a lifting dog carried by said lever and coacting with the body when the lever is used as a lever to raise the lifting member, said lever being adapted to be positioned between and in alignment with the sides of the body when the device is not used as a jack, and the lifting member having means to engage the lifting dog of the lever to prevent displacement of the latter from aligned position between the sides of the body.

997,233. Carburetter. Fredson E. Bowers, New Haven, Conn., assignor, by mesne assignments, to The Gilbert Manufacturing Company, New Haven, Conn., a Corporation. Filed Jan. 11, 1909. Serial No. 471,738.

1. In a carburetter, the combination with the body thereof, of a Venturi tube located in the said body and open at its upper and lower ends, a spray-nozzle cup removably attached to the lower end of the said body from which it is separated by the main air-inlet of the device, and a spray-nozzle carried by the said cup and rising within the said Venturi tube to the most restricted point thereof.

997,960. Illuminating Identification Device. Frederick L. Briggs, Brookline, and George Morris, Jr., Boston, Mass. Filed April 6, 1908. Serial No. 425,499.

1. An identification device comprising a one-piece casing having a convex rear wall and beveled ends, removable interchangeable information bearing members having each a semi-transparent area constituting an interchangeable combination, a constant additional information imparting means of substantially the length of said casing, the edges of the casing disposed to receive said information bearing members, illuminating means therefor, a detachable locking member for attachment to said casing and provided with a tension member to securely lock said information bearing members in position.

997,970. Lever Lock. Albert B. Diedrich, Detroit, Mich. Filed Aug. 11, 1909. Serial No. 512,296. (Model.)

1. In a device of the class described, the combination with a pair of operating levers having inwardly extending jaws, pivots for said levers, a controlling lever mounted concentrically with the operating levers, parallel guide and stop bars for said levers, and a securing device engaging between the jaws of the operating levers to hold the controlling lever in engagement with the stop bars.

997,979. Ball Retainer. Frank H. Farmer, Cleveland, Ohio, assignor to The White Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 11, 1908. Serial No. 466,954.

1. In a ball retainer, the combination of

WANTS AND FOR SALE

15 cents per line of seven words, cash with order.
In capitals, 25 cents per line.

REBUILT THOMAS CARS—One year's work usually tells the story of the difference in construction between a high grade, high priced and high powered car and those built to sell at a low first cost. The strain of gear shifting, the jar of road shocks, and the stress of brake work begin to tell on the cheaper cars. Therefore the logical deduction is that for the man who wants a thoroughly dependable car at a moderate price the very "best buy" is a high grade used car that has been rebuilt in the factory where it was originally made. We have a few four and six cylinder cars, 1908, 1909 and 1910 models, some priced as low as \$1,000. These cars should not be confused with the ordinary "second hand" proposition, as in the rebuilding all parts which show the slightest wear are replaced by new ones. If you want a car for real work, write us and we will send you special bulletins descriptive of rebuilt cars we have on hand. For a reasonable payment we will hold one of these cars for you for early spring delivery. **USED CAR DEPARTMENT, E. R. THOMAS MOTOR CAR CO., Buffalo, N. Y.**

FOR SALE—Bodies. We offer subject to sale some four and five-passenger touring car and fore-door roadster bodies. Can be rebuilt to fit, and fore-doors can be added to touring bodies if desired. **RACINE MANUFACTURING CO., Racine, Wis.**

FOR SALE—By **THE PATTERSON TOOL & SUPPLY CO., Dayton Ohio**, specialists in garage repair shop outfits, a 15 in. by 6 ft. compound rest "Sebastian" lathe. \$160.

STORAGE—\$4 a month and upward. **RIVERSIDE STORAGE WAREHOUSE, 618 West 131st St., N. Y. City.**

FOR SALE—Knox Model O, water, full equipment. Oakland Model K, top, glass front. Oakland Model 25, elegant full equipment. Oakland racer, a dandy hill climber. Oakland Model K, near new, good. Maxwell D-A model touring, good shape. **F. W. SMITH, 161 Commerce St., New Haven, Conn.**

FOR SALE—1911 Clark 5 passenger, 4 months old, double door type, 30 H. P. Rutenber motor, Remy magneto, demountable rims, 34 x 3½, mohair top, etc. Cost \$1,500. Sacrifice for \$850. **BOX 54, Beavertown, Pa.**

two rings each concavo-convex in transverse section, and each having a plurality of holes, said rings being arranged with their concave sides facing each other, with a plurality of separators which lie between said rings and have tongues which project through holes in said rings and are turned over against the convex outer faces thereof, said separators also having, adjacent to said tongues, convex ends which engage with and fit the concave inner surfaces of said rings.

997,997. Driving Axle Structure for Motor Vehicles. Emil C. Hardegen, Indianapolis, Ind., assignor to The Hardegen

FOR SALE—65 shares United Motor (Rutherford Rubber Co.), 7% cumulative preferred. **LEWIS W. BROWN, Englewood, N. J.**

AUTOMOBILE repairing and overhauling done by a first-class mechanic. **STRAUSS, 25 W. 114th St., care Merkler, New York.**

ACCOUNT CONTRACT CANCELLED, will sacrifice Knox commercial delivery automobile; large size, fancy panel body; solid tires; recently overhauled and repainted; guaranteed perfect; sacrifice \$350, worth \$1,000. **SUPERINTENDENT, CONTINENTAL ICE COMPANY, 437 East 23rd St., N. Y. City.**

FOR SALE—Bargain prices in several used cars—Cadillac, Maxwell, Hup, Flanders and others. **RUSSELL CURRY, Ridgeday, Pa.**

WELD-IT-ALL—Cast iron, aluminum, crank cases—in fact any metal. Machine shops and garages, send your address, we will tell you how; absolutely safe. Good territory for good sales agents. Don't delay. **H. D. PROSE & CO., Hutchinson, Kan.**

FOR SALE—1911 "Oakland," 40 H. P., five passenger, fore-door touring car; full equipment; run three weeks as demonstrator; perfect condition; great bargain; color, battleship gray. Will sell \$1,100 cash; list \$1,785. **DR. F. J. HARLAN, 202 Dryden, Flint, Mich.**

PRIVATE FAMILY will sacrifice Jackson five passenger touring car, \$200; perfect running order; also Overland run-about, \$125; act quick. See **MR. BALDWIN, 437 East 23rd St., N. Y. City.**

WANTED—A capable, experienced advertising and publicity man; one who can get up attractive advertisements and handle publicity properly for one of the best known lines of automobiles in America. State experience and give references in first letter. Address, **N. V., Box 649, New York City.**

FOR SALE—1911 Elmore Touring Car, 30 H. P., fully equipped, cost \$1,500, guaranteed fine condition, price \$850 for quick sale; full description sent; a bargain. **H. J. DANIELS, Norwich, N. Y.**

AUTOGENOUS welding of broken cylinders and crank cases is most expertly done by **WATERBURY WELDING WORKS, Waterbury, Conn.**

Axle Company, Indianapolis, Ind., a Corporation of Indiana. Filed July 21, 1910. Serial No. 573,137.

1. In a rear axle structure, the combination of the main hollow body having oppositely extending tubular extensions and a removable cap, of a differential gearing mounted in said main body and having bearings at its ends, a pair of bearing cups mounted in said main body, said cups relatively axially adjustable to engage or entirely free the differential gearing upon removal of the cap, and shaft sections mounted within the tubular extensions of the main body and having an axial withdraw-

able non-rotative connection with the differential gearing.

998,002. Driving Mechanism for Automobiles. Henry K. Holsman, Chicago, Ill., assignor to Independent Harvester Company, a Corporation. Filed Feb. 9, 1909. Serial No. 476,915.

1. In a driving mechanism, the combination with a driven member having a friction sheave, of a driving member having friction surfaces for one speed and sprocket teeth for another speed, and a sprocket chain adapted to connect said sheave and friction surfaces at one speed, and said sheave and sprocket teeth at another speed, and to be disengaged from either the friction surfaces or the sprocket teeth of the driving member when it is desired to stop the driven member.

998,005. Speed Controlling Means. Elijah Hunter, Boston, Mass.. Filed Apr. 28, 1910. Serial No. 558,241.

1. In a mechanism of the character stated, a supporting frame having a bearing, a driving shaft mounted in said bearing, said driving shaft having a squared end, a plate mounted on said squared end, a driving disk mounted on said squared end, bolts secured to said plate and pinned to said disk, a driven shaft, a bearing on said frame for said driven shaft, a sliding friction disk on said driven shaft to engage said disk on said driving shaft, said sliding disk having a grooved portion, a pivoted lever having a fork to engage said grooved portion, a spring connecting said lever with said frame continuously tending to move it in one direction, and means for moving said lever in an opposite direction.

998,042. Tire Case. Charles H. Semple, Trenton, N. J. Filed Apr. 12, 1909. Serial No. 489,304.

A tire case having an inner strip and a flap formed on its inner side and attached to the same edge of a side of the case, said strip having at its free edge a series of studs, and said flap having a series of socket buttons near its free edge, another

inner strip attached to the edge of the other side of the case, and having formed in it a series of apertures through which the said studs may pass and enter said socket buttons; said inner strips and flap forming a closure lying entirely between the side pieces of the case.

998,099. Ball Bearing. Oliver C. Knipe, Palo Alto, Cal. Filed Dec. 20, 1909. Serial No. 534,207.

1. A ball bearing comprising a hard steel cup, a hard steel cone, balls interposed therebetween, and an abutment on the cone overlapping the end of the cup and molecularly integral with the cone to which it is united by a zone of soft steel.

998,123. Carburetter. Arthur J. Scaife, Cleveland, Ohio, assignor to The White Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 12, 1910. Serial No. 596,758.

1. In a carburetter, the combination with a fuel chamber, a spray nozzle, a conduit connecting said chamber and nozzle, an air conduit open to the atmosphere, and a tubular sheath which surrounds the nozzle and is in communication with said air conduit, and has lateral discharge orifices near its upper end, of a valve casing having aligned inlet and outlet openings in its lower and upper walls, a cylindrical air throttling valve mounted in said casing and having through it a hole in the shape of a Venturi tube, said valve being so placed that the sheath and nozzle project into the sole in the valve, and said valve having in its wall a circumferentially extended slot to accommodate said sheath when the valve is closed.

998,127. Tire for Vehicles. Ernest Siegel and Michael J. Cantor, New York, N. Y., assignors of fifty-one one-hundredths to Jacob Ruppert, Jr., twenty-four and one-half one-hundredths to Ernest Siegel, and twenty-four and one-half one-hundredths to Michael J. Cantor, New York, N. Y. Filed Sept. 29, 1910. Serial No. 584,433.

1. A wheel for vehicles comprising an annular felly, an annular rim surrounding the felly, and intermediate cushions connecting the felly and rim, the rim comprising sections of rigid material, links connecting said sections, and lugs projecting radially from the felly on opposite sides of the connecting links.

998,141. Automatic Fender. George L. Wheeler, St. Louis, Mo. Filed Feb. 20, 1911. Serial No. 609,599.

1. In an automobile fender, a fender proper comprising a frame pivotally mounted to a suitable support in advance of the automobile body, rods constituting forward extensions of said fender frame, an auxiliary fender pivotally supported upon the forward ends of said rods and poised to normally carry in a vertical position, the fender frame proper having a preponderance of weight to the rear of its pivotal point, for the purposes stated.

998,200. Spark Plug Holder. William J. Randolph, Jr., Moscow, N. Y. Filed Dec. 8, 1910. Serial No. 596,318.

1. A spark plug holder comprising a base adapted to be secured to the cylinder of an engine and having a seat for the spark plug, a cap detachably secured to said base, and clamping means on said cap which are adapted to engage said spark plug and clamp the same against said seat, substantially as set forth.

998,213. Recording Speed Indicator. John Osborn Tonkin, Steglitz, near Berlin, Germany. Filed Mar. 23, 1910. Serial No. 551,075.

1. In an indicating device of the class described, in combination, a time stamp, a paper strip adapted to have time indications printed thereon by said stamp, means controlled by the motion of a vehicle for feeding said paper strip relatively to said stamp, an inking roller adapted to be actuated to ink said stamp, a pad adapted to press said paper strip against said stamp, and means comprising a system of cranks for alternately actuating said inking roller and said pad.

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F.I.A.T.

NEW YORK

FIFTEENTH YEAR

THE MOTOR WORLD

Vol. XXIX.

New York, U. S. A., Thursday, December 7, 1911.

No. 46

INVITATION EXTENDED TO GLIDDEN

Asked to Become Head of "Contemplated Merger" and is Considering It—Admits He's Still in the Dark.

Charles J. Glidden, of Boston, the donor of the Glidden trophy, has been invited to head what he himself describes as a "contemplated merger" of automobile companies.

Beyond the fact that he received such an invitation from a man prominently connected with the industry, and that he had promised to consider it, Mr. Glidden, with every appearance of sincerity, admitted to a Motor World man that he knew nothing of the project; he declared that he did not know the names of the companies—if any—that had been or would be approached or that are likely to join the proposed and rather intangible merger. He knew only the emissary who had called on him, who seemed anxious to secure the use of the name Glidden and who promised to return later and supply the details that should be known to every prospective president of every well regulated merger movement.

The emissary has not yet imparted the necessary information but as he had bound Mr. Glidden to hold his identity secret the latter could not disclose his name.

There are those, however, who associate the project with certain things which it is quietly rumored are likely to occur in the vicinity of Detroit on January 1st, or soon thereafter, and which by linking the name Glidden with another well known name can be turned to no small advantage in attracting investors.

N. A. A. M. Reinstates Two Exhibitors.

The December meeting of the board of managers of the National Association of Automobile Manufacturers, which was held in New York yesterday, was short and sweet. It lasted less than half an hour, the only business other than routine which was transacted being the reinstatement to

good standing, so far as shows were concerned, of the Chase Motor Truck Co., of Syracuse, N. Y., and the Penn Motor Car Co., of New Castle, Pa. Both of them exhibited at the unsanctioned show in the Grand Central Palace last January and thereby disqualified themselves. Their reinstatement will permit them to exhibit at the forthcoming shows in New York and Chicago.

Flanders Heads His Pontiac Company.

Walter E. Flanders finally has assumed the presidency of the Pontiac, Mich., company bearing his name, the Flanders Mfg. Co., which makes the Flanders Electric, the Flanders motorcycle and also produces gears, forgings and castings for the trade. He was elected to the office on Tuesday last to fill the vacancy caused by the resignation of Robert M. Brownson, who previously had resigned the general management of the company, which was taken over by Don C. McCord. Brownson's resignation as president and the recent death of John T. Shaw leave two vacancies on the Flanders directorate which have not yet been filled. Flanders himself still remains general manager of the Studebaker Corporation's Detroit interests.

Supreme Court Won't Review Weed Patent

The attempt of the Excelsior Supply Co., of Chicago, to induce the United States Supreme Court to review the merits of the Parsons patent covering the Weed chain tire grip has failed—that tribunal, on Monday last, denying the application for a writ of certiorari which had been filed by the Excelsior company against the decision of the United States Court of Appeals for the Seventh District. The writ of certiorari being the last step possible in patent litigation, the Parsons "non-skid" patent, No. 723,299, is, therefore, valid beyond question or dispute.

Henry Company in Receiver's Hands.

John H. Moore, of Muskegon, Mich., has been appointed receiver of the Henry Motor Car Co. of that city. Both assets and liabilities are said to be small.

STUDEBAKER ADOPTS CREDIT PLAN

Departs from Cash Basis and Will Accept Notes—Protected by Leases and Insurance—Conflicting Opinions.

Undoubtedly few occurrences of recent years have caused more perturbation and excited more variegated comment within the industry than the announcement made late last week by the Studebaker Corporation that henceforth it would accept notes from responsible buyers in payment for its E-M-F and Flanders cars.

While "selling on consignment" to agents has been by no means rare, the action of the Studebakers marked the first departure from the cash basis on which the automobile business has been conducted almost from its inception. There are those who have believed that ultimately something of the sort would come to pass but the nature of the automobile and the amount represented by each sale make the risk so great that none cared to hasten the day or looked forward to it with equanimity.

The reasons for the radical move on the part of the Studebaker Corporation were thus summarized by its general manager, Walter E. Flanders:

"We have in view the future rather than the immediate present, and with the object of expanding and at the same time placing our business on as solid a foundation as others, we simply have adopted the credit method which, more than any other factor, has been responsible for the success of such concerns as the International Harvester, the Rock Island Plow, the Studebaker Wagon, the Singer Sewing Machine and other concerns whose market is worldwide. We have considered the advent of the credit in this business as inevitable and our move is but the consummation of a plan long since laid."

On Tuesday last an official of the Studebaker Corporation stated that the stimulating effects of the announcement had been felt almost immediately.

"In many cases," he added, "dealers have reported that their local banks discounted the buyers' notes, so that the paper will not reach us at all. But we are not doing an instalment business," he continued, "and if the Motor World will assist in counteracting that impression it will perform a service for the industry. We simply are extending credit—extending the same form of accommodation that prevails in nearly all other businesses. But by no means are we throwing the door wide open to anyone who is able to attach his signature to a note and cares to do so. We merely are making it possible for those who are financially responsible to purchase an automobile and in a sense permitting them to use it while paying for it."

The Studebaker plan includes the execution of a lease when a sale is effected and a car delivered, the dealers being supplied with blank leases drawn in accordance with the laws of their respective States. No fixed first payment or percentage of the purchase price is required.

"It all depends on the circumstances and the character of the buyer," said the Studebaker official, in reply to the Motor World's question on this point. "In most cases we believe we can obtain from one-half to three-quarters down. When we get at least one-half, the car immediately is insured in favor of the Studebaker Corporation or of the dealer making the sale. We do not anticipate that many of the notes will run for a longer period than six months."

Opinions expressed by two "high-up" men, who were members of a trade group that discussed the Studebaker departure, best serve to show the views that are held.

"There are only about three businesses in which 'cash on the nail' has been the rule, and the automobile business is one of them," said the first man. "It is hardly supposable that it could last for all time and it was inevitable that some day we must break away from it. There will be no general breaking away for quite awhile yet, but we may as well look facts in the face and though it will require big money to swing it and the risks will be great, if we must do it we simply must set about making arrangements to that end."

The other member of the party was not quite so philosophical.

"It is well enough to talk about wagons and bicycles, plows and sewing machines," he remarked, "but in no respect are they comparable with automobiles. The difference in their cost and the character of their use is too great to place them in the same class. We all know what trifles often cause buyers to dispute their bargains, so what will be the position of manufacturers or dealers, if, by the credit system, purchasers are placed in position to repent of their bargains or throw their cars back on our hands after having taken up a few notes. We would either have to carry an army of lawyers or go into the used-car business."

ANDERSON SEES A BANNER YEAR

Returns From Coast-to-Coast Trip Filled With Enthusiasm—Country is Hungry for Motor Cars, He Declares.

After a coast-to-coast trip covering more than 10,000 miles, J. D. Anderson, general sales manager of the United States Tire Co., has returned to New York extremely enthusiastic over the trade outlook for 1912.

Mr. Anderson visited practically all of the branches maintained by the United States Tire Co., and had occasion to study business conditions in many different sections of the country.

"I am convinced," he says, "that next year is going to be a hummer for the automobile trade and its allied interests. The whole country seems to be automobile hungry. There will be a big demand for cars of every class, and in the middle and far West, particularly, there seems to exist a great field for small, medium-priced cars. The farmers out that way are very much alive to the fact that the automobile is something more than a toy for the use of the opulent city man, and it really is surprising the number of machines that are going into the rural districts.

"Passing through a small western town of perhaps 2,500 inhabitants, I counted 17 cars lined along the main street. To me this indicates the extent to which the automobile has been adopted as a means of transportation in farming communities.

"Business on the Pacific coast is booming. I visited Los Angeles, San Francisco, Portland and Seattle, and found our branches there head over heels in work trying to keep pace with the tire demands of that section of the country. San Francisco is humming with activity and enthusiasm in preparation for the Panama Exposition, which undoubtedly will be a big thing for the West.

"We have opened several new branches and established numerous agencies in the West during the past few months and their reports to me, coupled with my own observations, carry the conviction that the Pacific slope is destined to be an amazingly prolific field for automobile and tire manufacturers.

"The general tone of trade throughout the country is decidedly good and the future outlook extremely bright. Personally, I think there is every reason for saying that 1912 will be by all odds the best year, from every standpoint, that the automobile industry has known."

Colorado Truck Company Acquires Plant.

The Byron Motor Co., of Denver, has purchased what formerly was the plant of the Pueblo Steel Wheel and Wagon Co., in Pueblo, Col., and is installing machinery

for the manufacture of the Byron motor truck, which is described as being designed on a "unit plan" which permits the engine and other parts to be readily replaced without disturbing other parts. The plant occupies 10 acres and is expected to be in operation by January 1st. It is the purpose to produce about 600 trucks, in one, three and five-ton sizes, during the year.

Tires to Be Branded "United States."

At the forthcoming shows, the United States Tire Co. will exhibit for the first time a tire styled and bearing the brand "United States Tire," which it is explained will incorporate "the strongest individual points" of each of the company's four brands at present produced—the Hartford, G & J, Morgan & Wright and Continental. There are those who prophecy that it will not take long for the new tire to wholly supplant the four older brands and that the company's output will soon comprise "United States tires" only, as, indeed, its productions rapidly are becoming generally known.

Kentucky Wagon Makers Add Electrics.

The Kentucky Wagon Mfg. Co., of Louisville, Ky., of which W. C. Nones is president, has taken over the business of the Electric Vehicle Co., which was started in that city several months ago and which produced only a few electrics. The Wagon company will continue the manufacture of the electric vehicles, devoting its first attention to wagons and later to pleasure cars, but without in any way curtailing its production of horse-drawn wagons.

Electric Starter to be Made in Paris.

Under the style the Paris Electric Starter Co., a company has been formed at Paris, Ill., to manufacture an electric starting device for motor cars. Carl Farnham, the inventor of the device, is president; Frank Fishback, vice-president; Chester Showalter, secretary, and Paul P. Shutt, treasurer. Farnham is the owner of a garage and salesroom in Paris, and is backed by local capitalists.

S. G. V. Elected to Board of Trade.

At the regular monthly meeting of the Board of Directors of the Automobile Board of Trade, which occurred yesterday in the organization's New York office, the S. G. V. Motor Co., of Reading, Pa., was elected to membership. All else was of a routine nature. The next meeting of the Board of Trade, which falls on January 9th, will be its annual meeting.

M. A. M. Fixes Date for Annual Banquet.

The annual banquet of the Motor and Accessory Manufacturers has been fixed to occur on Tuesday, January 9th. It will be held in the Waldorf-Astoria. The annual meeting and election of the organization will occur the day before, also at the Waldorf.

DOUBLE-ACTING ENGINE IN SIGHT

Well-Backed Company Adapts Marine Motor to Automobile Service—Its Design and Its Advantages.

While the air has been filled with talk of sleeve valves, rotary valves, slide valves, vibration dampers and numerous other mechanical devices tending toward more or less radical changes in automobile engines, there has been quietly evolving at Bordentown, N. J., a two-cycle motor of a type that is expected to create a considerable stir when it is ready for public exploitation. It is being developed by the Rice Gas Engine Co., of which Harris Hammond, a son of John Hays Hammond, is president; John V. Rice, Jr., the inventor of the engine, is vice-president; W. H. Bartlett, secretary and treasurer, who, with John Hays Hammond, Jr., Wm. W. Baldwin and Fred E. Tasker, constitute the board of directors. The financial resources suggested by several of these names indicate that the company is a substantial one and one whose efforts must be accepted seriously. It has ample resources, a fine large plant, and has been operating, chiefly on the production of marine engines, for some years.

Not only is the new Rice engine of the two-cycle type, but it is double-acting to boot, the crankshaft receiving two impulses per revolution from each cylinder, or a total of eight impulses per revolution from the four cylinders of the motor. For several years the principles involved have been tested in marine motors built in sizes ranging from 25 to 300 horsepower, and with such marked success that a lighter type for automobile service has been designed, built and tested on the block. A car is now under construction for the new Rice motor, and when completed the machine will be thoroughly tried out under road conditions before actual manufacturing operations are commenced.

Owing to the peculiar design of the engine the crankshaft, main bearings and connecting rods are all outside, only the pistons being enclosed in the cylinders, and there is no crankcase, unless that term can be applied to a light metal pan which serves as an excluder of dust and a retainer of oil. Self-starting is a feature of the motor, compressed air being used as a medium for the storage of energy, and distribution is effected through a revolving valve which admits air to the lower combustion chambers of the cylinders, leaving the upper chambers free to take in and fire their charges of gas and pick up the load. The starter will turn the engine over in either direction and the motor will run equally well forward or backward and can be started under a considerable load.

The advantages claimed for the engine are light weight, fuel economy, perfect lu-

brication and extreme simplicity, owing to the absence of valves and the very small number of working parts; great power for its light weight; long life, because the design of the engine permits the use of ample bearing surfaces and there are no small working parts to wear rapidly; accessibility, all bearings being outside; steady running at all speeds and ability to pull well at low speeds because of the constancy of torque, and reversibility and easy starting under air pressure.

Lozier Bestows New Titles on Staff.

Because of a semi-reorganization of its staff, necessitated by its increased volume of business, the Lozier Motor Co., of Detroit, has created the office of general manager and filled it by the appointment of Fred C. Chandler, second vice-president of the company, who, heretofore, has been in charge of the sales department. The management of the latter has been turned over to C. A. Emise, the former advertising manager. Simultaneously John G. Perrin, the company's chief engineer, has been created a vice-president, and Russell E. Benner has been made production manager. All, save the latter, have been connected with the Lozier interests for many years and date from the time when the name Lozier was one to conjure with in the bicycle industry. Benner, who has had manufacturing experience in several other automobile factories and other producing plants, has been connected with the Lozier Motor Co. for some little time and his taking the new title is in the line of deserved advancement.

May Build Golden Arrow in California.

The Curtiss-Shea-Cox Co., of San Francisco, in conjunction with a party of Los Angeles investors, is seeking to float a \$500,000 bond issue, the proceeds of which will be devoted to the erection of an automobile factory in Los Angeles. They purpose manufacturing a 30-horsepower car which will be styled the "Golden Arrow."

Krit English Company Incorporated.

The Krit Motor Car Co., Ltd., of London, which is handling the American car of that name, has been incorporated under English laws with capital of £100 in £1 shares. Its headquarters are at 24-25 Long Acre.

Another American Enters Great Britain.

The Hupp Corporation, of Detroit, is the most recent American manufacturer to "invade" the British market. It has placed its representation for the R. C. H. car in Great Britain with Byrom & Co., of London.

Coldwater Plant For Atkins Carburetter.

The Atkins Mfg. Co. has acquired a plant in Coldwater, Mich., where it henceforth will manufacture the Atkins carburetter. Operations in Detroit, of course, will be discontinued.

BRIGGS COMPLETES HIS COMPANY

His Associates Disclosed and Factory in Detroit Acquired—The Car That Will Be Manufactured.

Claude S. Briggs, who resigned the general management of the Brush Runabout Co. of Detroit, to devote himself to the organization of the Briggs-Detroit Co., preliminary announcement of which was made some two months since, has perfected the organization of his enterprise and has acquired the factory for which he has been negotiating, and is about to begin actual operations. Briggs, as already was known would be the case, has been elected president and general manager of the company, but his associates just have been disclosed. They are John A. Boyle, who has been chosen vice-president, and Emil D. Moesner, who is secretary and treasurer. They comprise the present board of directors.

Briggs, who heads the new company, is one of the best known and most energetic developments of the Detroit trade. Before joining the Brush Runabout Co. in the capacity of general manager, he served as president of the Krit Motor Car Co. in the organization of which he was largely instrumental. Emil D. Moesner, the secretary and treasurer, is at present treasurer of both the Brush Runabout Co. and the Briscoe Mfg. Co., both of which offices he will relinquish to join Mr. Briggs. John A. Boyle, the vice-president, is general manager of the Briscoe Mfg. Co., and it is generally understood that his interests in the Briggs-Detroit Co. will be of a financial and advisory nature, and that it is not likely he will resign his connection with the Briscoe company.

The plant which they have acquired is a modern structure which was built about a year ago for the Reinforced Concrete Pipe Co., which, because of alterations in their plans, never occupied it. It is located in Detroit at the junction of Holbrook avenue and the Grand Trunk Railroad. It has cement floors throughout and is up-to-date in every particular and is of a sufficient size to permit of a production of 5,000 cars per year. It also readily may be expanded to bring the output up to 8,000 cars. The Briggs-Detroit Co., which is capitalized at \$200,000, of which 80 per cent. has been paid in, will occupy the factory within two weeks and expects to be able to make delivery of cars about February 1st.

The car which will be produced and which will be styled the Briggs-Detroit, will be a five-passenger, 25 H. P. touring car, selling for \$850 fully equipped, and a two-passenger roadster on the same chassis priced at \$700 fully equipped.

The motor is of the long stroke type, $3\frac{1}{4} \times 4\frac{1}{4}$ inches, its crank shaft being mounted on ball bearings. The modern

tendency to enclose working parts and quiet their operation as much as possible is exemplified in the housing of the timing gears within the crankcase, the covering of the valves by removable plates and the encasing of the flywheel and clutch in a single housing. The intake passages are carried under the water jackets, the idea being to heat the gas and improve carburation, in addition to making a clean looking engine. Cooling is accomplished by the thermosiphon system, and both inlet and outlet for water are two inches in diameter.

Carburettor and magneto are placed on opposite sides of the motor and valves, all alike and interchangeable, on the right hand side. The clutch is of the multiple disk type and transmits power to a change speed gear which gives three forward speeds and a reverse, the gears being carried in a one-piece aluminum case. Final drive is through propeller shaft and bevel gears to the full floating type rear axle running on ball bearings in a one-piece pressed steel housing. The brakes are enclosed and the brake-drums are 14 inches in diameter.

Center control is used, with left side drive. The steering gear is of the worm and nut pattern and is adjustable; the wheel is 16 inches in diameter. Metal sheets form the body, which is of the closed front type and will accommodate five passengers. Doors open forward. In proportion to the weight of the car, said by the makers to be 1,750 pounds fully equipped, the tires should be of ample carrying capacity, being 32 by 3½ inch. Rear springs are of the full platform type, which it is asserted are not used in any car listing at less than \$1,750.

Internal War Disrupts Rubber Company.

Largely because of long continued internal dissension the Mansfield Rubber Co., of Mansfield, Ohio, a \$250,000 corporation, is in the hands of S. E. Ward as receiver, the bankruptcy proceedings having been instituted by New York creditors who shared the dissatisfaction which existed. The company was organized in December, 1908, by Charles H. and F. W. Walters and F. A. Wilcox, of Akron, who were experienced rubber men. They soon got into trouble with the other stockholders, however, and some bitter allegations resulted. Among other things, it was charged that F. W. Walters and F. A. Wilcox disposed of their stock to other Mansfield people and made misrepresentations regarding the condition of the company, to effect the sale. There were also accusations of stock and other financial manipulations, because of which it was stated Charles H. Walters was forced out of the vice-presidency and general management of the company in August last. Several suits growing out of the situation have been filed not only against the company but against Charles H. Walters personally. When it was seen that the company was heading for the bankruptcy court, B. L. Chase, its president, sought to effect

a reorganization, but the majority of the stockholders would not consent to his plans.

Changes Among Prominent Tradesmen.

P. S. Beamer, who for a considerable period has been identified with the Metzger Motor Car Co. in Detroit, has been promoted to the post of general auditor of the company. He will have charge of all accounting and similar work.

George Main, formerly assistant traffic manager of the Chalmers Motor Co., has been appointed traffic manager of the Metzger Motor Co. of Detroit. He has been identified with the traffic service in Detroit for many years which implies that he has ripe experience.

Charles W. Sponsel has been appointed factory manager of the Pierce Motor Co., of Racine, Wis. Sponsel is an old resident of Hartford, Conn., where he was connected with the Colt Fire Arms and Pratt & Whitney factories. He has served also with the General Electric Co.

P. P. Willis has resigned as advertising manager of the Mais Motor Truck Co., of Indianapolis, to assume a similar position with the National Motor Vehicle Co., of the same city. Previous to his connection with the Mais company, Willis performed publicity work for the Willys-Overland interests.

Durant Honored at "Wizard's Banquet."

W. C. Durant, who placed Flint, Mich., on the automobile map, and who expanded the Buick Motor Co. to such huge proportions, was the guest of honor at what was denominated "The Wizard's Banquet," which was tendered him by the business men of that city on the 28th inst. Several of his associates, including his chief lieutenant, W. H. Little, who heads Durant's and Flint's newest enterprise, the Little Motor Car Co., were among the many who paid tribute to the bundle of energy who certainly did things in a way that made the automobile industry "take notice."

Westerdale to Manage Hupp Branch.

The Hupp Corporation, of Detroit, has established a branch in Chicago in temporary quarters at 2515 Michigan avenue. It will be managed by H. E. Westerdale, formerly manager of the Studebaker branch, and will direct the sale of R. C. H. gas cars and Hupp-Yeats electrics in Illinois, Iowa, Wisconsin and Nebraska.

Loan, Fire and Debts Cause Mix-up.

Affairs of the R. E. Lawrence Auto Livery Co., of Peoria, Ill., are in a more than tangled state, owing to a loan, a fire and two bankruptcy petitions filed by R. E. Lawrence personally, and the Lawrence company as a corporation, and both the debtors as well as the creditors have applied to the courts to straighten out the tangle. It appears that in March of this year, Lawrence borrowed \$750 of the Mer-

chants' National Bank, turning over as collateral a fire insurance policy payable to the Auto Livery company. Just before Lawrence became bankrupt the garage burned down and the bank collected on the insurance policy; it is still keeping the money. When Lawrence became bankrupt, this money was claimed by Charles C. Cockle, the trustee in bankruptcy, as part of his assets; a short time later when the company itself went bankrupt, Clarence W. Heyl, who had been appointed receiver for the company, also claimed the same money, on the ground that it properly belonged to the assets of the company. The bank has caused the dispute to be aired in court and will pay the money to whomsoever the court designates as the rightful claimant.

New Locations for Ajax Branches.

The Ajax-Grieb Rubber Co.'s Detroit branch has been removed from 745 Woodward avenue to No. 507 on the same thoroughfare. The Denver branch of the company also has been removed from 1518 Broadway to a new location at 1529 Cleveland place. In both instances the additional room secured which will permit the carrying of larger stocks.

Jones Locates Wheel Plant in New York.

Phineas Jones & Co., of Newark, N. J., who have been building wheels since 1885, have set up a branch plant in New York City at 12th avenue and 55th street. They long have made a specialty of automobile wheels and the New York plant will enable them to supply or repair either pleasure car or truck wheels more quickly than heretofore.

Hagstroms Adding to Their Productions.

The Hagstrom Bros. Mfg. Co., of Lindborg, Kans., which manufactures an emergency tire sleeve, has taken over the business of the Auto Vehicle Washer Co., of Topeka, which produced a patented mop or washing device. The Hagstroms are also negotiating for another automobile invention which probably will be added to their line.

Motz Branch Opened in New York.

The Motz Tire & Rubber Co., of Akron, Ohio, has opened a branch in New York City, at Broadway and 55th street. It is in charge of E. P. White, who previously was with the Goodyear Tire & Rubber Co.

More Room for Splittorf in 'Frisco.

Because of pressing need of more elbow room, The C. F. Splittorf, San Francisco Branch, has been removed to 430-436 Van Ness avenue. It remains in charge of P. E. Kempton.

Gould and Dean in Credit Association.

The Gould Storage Battery Co., of New York, and the Dean Electric Co., of Elyria, Ohio, have been elected to membership in the Automobile Trade Credit Association.



El Paso, Texas.—The El Paso Automobile Club, under Texas laws. Corporators—French S. Cary, W. J. Rand, C. W. Kenny.

Detroit, Mich.—Simpson Tire Fiber Co., under Michigan laws, with \$100,000 capital. Corporators—S. L. Simpson, James D. May, Harry J. Dingman.

Davenport, Iowa.—Davenport Auto Co., under Iowa laws, with \$10,000 capital; to deal in automobiles. Corporators—Charles A. Frey, August A. Leberman.

Milwaukee, Wis.—Packard Motor Car Co., an Illinois corporation, admitted to do a general automobile business in the State of Wisconsin. Wisconsin capital, \$25,000.

Richmond, Va.—Broad Street Garage Co., under Virginia laws, with \$5,000 capital; to deal in automobiles and maintain a garage. Corporators—A. Zachary, O. B. White, C. Stokes.

Louisville, Ky.—The Transit Motor Car Co., under Kentucky laws, with \$20,000 capital; to deal in motor vehicles. Corporators—R. C. Walker, George H. Laib, W. B. Young.

St. Joseph, Mo.—Grassfield Automobile Co., under Missouri laws, with \$2,000 capital; to deal in automobiles. Corporators—E. A. Grassfield, F. E. Frank, George Vetuske.

Peoria, Ill.—Reliable Tire Repair Co., under Illinois laws, with \$2,400 capital; to deal in automobile tires and accessories. Corporators—John V. Leslia, George Haas, Bert Fritz.

Newark, N. J.—Lenox Motor Car Co., under New Jersey laws, with \$25,000 capital; to deal in motor vehicles. Corporators—L. Lippman, J. M. Shreffler, M. Lippman, C. Shreffler.

Buffalo, N. Y.—Pierce-Arrow Sales Co. of Buffalo, with \$75,000 capital; to deal in automobiles and other motor vehicles. Corporators—W. J. Minehan, T. D. Powell, W. H. Huntington.

Taunton, Mass.—The Perry Auto Co. of Taunton, under Massachusetts laws, with \$3,000 capital; to deal in automobiles. Corporators—Homer L. Lane, Frank W. Perry, James B. Wetherell.

Eagle Grove, Iowa.—Middleton Auto Co., under Iowa laws, with \$10,000 capital; to deal in automobiles and other motor vehicles. Corporators—Lyman B. Middleton, Claude E. Middleton.

Toledo, Ohio.—Moore Motor Truck Co., under Ohio laws, with \$10,000 capital; to deal in motor vehicles. Corporators—D. W. Bliss, M. M. Bliss, E. L. Skidmore, C. H. Rauch, F. E. Moore.

Chicago, Ill.—Fort Dearborn Auto Repair Co., under Illinois laws, with \$1,200 capital; to deal in motor vehicles. Corporators—Albert Campbell, Henry L. Baum, Donald S. McKinlay.

Indianapolis, Ind.—General Specialty Co., under Indiana laws, with \$40,000 capital; to manufacture automobile tires. Corporators—C. F. Gregg, R. E. Gregg, W. W. Gregg, N. W. Coulter.

GARDEN'S FULL DRESS DESIGN



First Glimpse of Setting Selected for Madison Square Garden Show

Denver, Cal.—Maxwell-Chamberlain Motor Co., under Colorado laws, with \$20,000 capital; to deal in automobiles and other motor vehicles. Corporators—Glen A. Maxwell, Fred B. Chamberlain.

Duluth, Minn.—Grand Avenue Garage Co., under Minnesota laws, with \$25,000 capital; to deal in automobiles and maintain a garage. Corporators—Frank Chambers, C. A. Knippenberg, C. M. Phillips.

Buffalo, N. Y.—Herkimer Garage Co., under New York laws, with \$10,000 capital; to maintain a garage and deal in automobiles. Corporators—Roland J. Conover, Robert E. Conover, Louis J. Jilson.

Charleston, W. Va.—Collison-Pierson & Co., under West Virginia laws, with \$25,000 capital; to deal in automobiles. Corporators—J. F. Collison, S. R. Pierson, W. B. Taylor, O. H. Ashley, A. B. Koontz.

Kiel, Wis.—Kiel Motor Car Co., under Wisconsin laws, with \$10,000 capital; to deal in automobiles and other motor vehicles. Corporators—J. Fred Thiessen, Philip Jugheimer, William A. Duecked.

New York City, N. Y.—Gurlitt-Braun-Davis Corporation, under New York laws, with \$25,000 capital; to manufacture and deal in motor vehicles. Corporators—H. Gurlitt, D. S. Davis, Jr., V. C. Bogardus.

Marshalltown, Iowa.—The Motor Car Accessories Manufacturing Co., under Iowa laws, with \$10,000 capital; to manufacture and deal in automobile accessories and supplies. Corporators—Charles C. Eldridge, Edwin J. Beebe.

Ogden, Utah.—Blair-Jones Auto Co., under Utah laws, with \$25,000 capital; to deal in automobiles and other motor vehicles. Corporators—Poseph S. Campbell, M. W. Kimball, J. Parker Blair, S. H. Blair, L. H. Blair, H. C. Blair, Jr.

Naugatuck, Conn.—S. M. B. Rubber Co., under New York laws, with \$150,000 capital; to manufacture and deal in rubber and rubber goods. Corporators—A. C. Squires, Akron, Ohio; E. Beekman, C. C. Beekman, both of New York City.

Dubuque, Iowa.—The Dubuque Rambler Auto and Supply Co., under Iowa laws, with \$10,000 capital; to deal in automobiles and motor accessories. Corporators—Arch Frater, E. J. Schreck, B. M. Fitzgerald, William E. Ellwanger, William M. Gerenger.

Changes in Corporate Name.

Chicago, Ill.—Pope-Hartford Motor Car Co., changes name to Deibler Motor Car Co.

Joliet, Ill.—Steinhart-Jansen Automobile Co., changes name to Towle Automobile Co.

Detroit, Mich.—Auto Brass Manufacturing Co., changes name to Brass Products Co.

Increases of Capital.

Urbana, Ill.—Illinois Motor Sales Co., from \$12,000 to \$25,000.

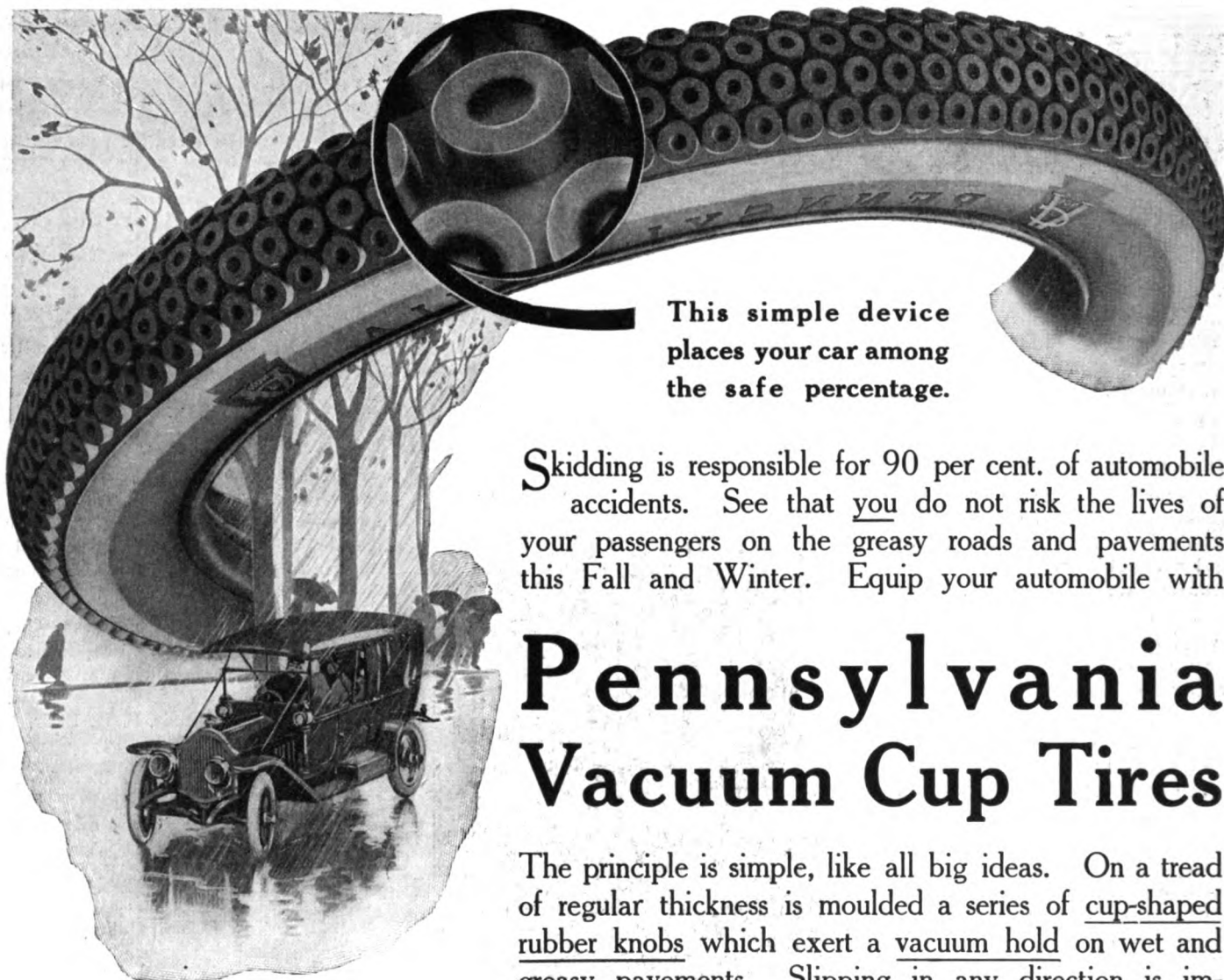
Detroit, Mich.—Michigan Stamping Co., from \$10,000 to \$300,000.

St. Louis, Mo.—Banner Rubber Co., from \$100,000 to \$400,000.

Port Huron, Mich.—Havers Motor Car Co., from \$60,000 to \$200,000.

Nashville, Tenn.—Marathon Motor Works, from \$600,000 to \$1,000,000.

Sandusky, Ohio.—Sandusky Auto Parts & Motor Truck Co., from \$150,000 to \$500,000.



This simple device
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the safe percentage.

Skidding is responsible for 90 per cent. of automobile accidents. See that you do not risk the lives of your passengers on the greasy roads and pavements this Fall and Winter. Equip your automobile with

Pennsylvania Vacuum Cup Tires

The principle is simple, like all big ideas. On a tread of regular thickness is moulded a series of cup-shaped rubber knobs which exert a vacuum hold on wet and greasy pavements. Slipping in any direction is im-

possible. The rolling of the wheel releases each cup automatically by raising one side first, so that forward speed is not retarded.

In snow and mud the knobs sink in and provide a better hold and better "traction" than any other form of non-skid.

Longer Service is a strong feature of Pennsylvania Vacuum Cup Tires. Even when the rubber knobs wear down, the tire is still as good for service as a smooth tread tire of regular thickness.

You combine the essential qualities of Safety and Economy by using these non-skid and long wearing tires.

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PUBLISHED EVERY THURSDAY BY

The Motor World Publishing Co.

154 NASSAU STREET, NEW YORK, N. Y.

A. B. SWETLAND.....President

F. V. CLARK.....Secretary-Treasurer

R. G. BETTS.....Managing Editor

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . . . \$2.00

Single Copies (Postage Paid) . . . 10 Cents

Foreign and Canadian Subscriptions . . . \$3.00

Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, DECEMBER 7, 1911.

Utility of the Extra Air Valve.

In view of the fact that manufacturers as a rule have been quick to see and adopt valuable features which are calculated to increase the efficiency of their products in general, perhaps it is not to be wondered at that they have completely overlooked at least one small thing which, if properly designed and applied, should go far toward decreasing maintenance cost and depreciation. Briefly, it is the fitting of an extra air valve to the carburetter, by means of which pure air may be admitted to the cylinders when the engine is used for braking, instead of making necessary the use of the "mixture" for this purpose.

That not a few motorists appreciate the advantages incidental to the use of the engine as a brake is not to be gainsaid; depreciation is lessened for the reason that the braking effort is applied smoothly and steadily. Also the braking effect is perfectly equalized, assuming, of course, that the same coefficient of friction exists at both rear wheels. But in order to obtain the greatest braking effect from the engine the throttle must be opened to its widest limit, and herein arises the objection that under such conditions gasoline consumption increases.

If, instead of necessitating the use of the "mixture" in order to obtain the greatest braking effect, an extra air valve were provided, the benefits accruing would be twofold, in that gasoline consumption would be decreased and the general wear and tear on the car incidental to ordinary braking strains would be reduced materially.

Of course the design of such a valve requires considerable thought and study, for it must be so constructed that under ordinary running conditions the quality of the mixture is not affected as it would be by leaks. But its design scarcely entails the solution of problems harder than those that have been solved in the evolution of other parts of the car, and because of its undoubted advantages it should be plain that the initial expenditure necessary in its production will be more than repaid in the end.

Noises That Make Garages Nuisances.

The undoubted ill favor in which garages are held in residential districts is due in large measure to causes that can be removed, in most cases, by the exercise of authority and a little ingenuity on the part of the garage management. One prolific source of disturbance and probably the most unpleasant, is the raucous sounding of the automobile horn by the chauffeur who, arriving at the garage finds the doors closed and takes such a method of expressing his desire that they be opened. If his signal is not heard or heeded at once it is repeated, with ever increasing vigor, until the car is admitted.

At this season of the year, when garage doors are kept closed at all hours to exclude the cold air, the horn tooting nuisance is at its worst and at certain hours is sufficient to constitute a public nuisance.

Another effective murderer of peace is the turmoil caused by the opening of the muffler cut-out when a car mounts the short, sharp grade that is frequently found at the garage entrance. Rather than take the trouble to change to a lower gear the chauffeur opens his exhaust to the atmosphere in order to realize the added power which he fancies "cutting-out" gives to his motor, and the fusillade that follows is second only to the clamor of the horn in its nerve-racking or sleep-dispelling power.

Although existing conditions do not seem to bear out the statement, there are good reasons why garage proprietors should not permit such a state of affairs to exist. The good-will of neighboring residents is as-

surely of value, for many are potential, if not actual customers, and prejudice, easily aroused, is difficult to allay. Moreover, organized opposition to a public nuisance can make much trouble, even to the extent of causing arrests or forcing the removal of the offending establishment in case of persistent misdeeds. And this horn-blowing nuisance is so necessary and so prevalent that the wonder is that garage owners will suffer it to continue when it holds promise of so much trouble for themselves, and when it so easily may be abated.

Making Truck Sales and Losing Them.

In this day of keen competition and of battles of wit and knowledge between rival motor truck agencies, a salesman is justified in making use of every legitimate plan he can concoct in the furtherance of his business. A task particularly difficult to accomplish is the sale of a vehicle to a prospective purchaser who already has become interested in the product of another manufacturer, and the salesman who can secure an order under such conditions, by legitimate means, may consider himself a real salesman.

But in the mad rush for orders and still more orders, the ethics of salesmanship too frequently are ignored, and methods are adopted which assuredly cannot be classed under the head of fair salesmanship. For example, there are dealers who keep carefully compiled lists of users of motor trucks of various makes, with the names of dissatisfied users carefully checked. Every user thus indicated can be depended upon to make a discouraging report—in the salesman's parlance he is a "knocker." When the holder of such a list finds that the "prospect" is already interested in some particular car, he at once looks up the vehicle on his list and, selecting one of the "knockers," cites his case to the prospect and adroitly suggests that he be asked to give his experience. This often brings the desired result, but there are cases where the would-be purchaser, finding that his efforts to obtain information result in "confusion worse confounded," abandons, at least temporarily, the idea of motor haulage.

In the enormous field that is now open for the sale of commercial motor vehicles, it would seem that there is no need for work of this kind. It does not smack of fair dealing.

THE MOTOR WORLD



At a cost of \$45,000 the Brown Taxicab Co. is erecting a three-story fire-proof garage at 1129 Cathedral street, Baltimore, Md.

At a cost of \$20,000 the Crispen Motor Car Co. is building a three-story hollow tile garage on South Cameron street, Harrisburg, Pa.

The Capital City Garage Co. has opened salesrooms at 316 Court avenue, Des Moines, Ia. The company handles the Jackson line.

M. J. Nolan and George A. Smith are building a one-story garage at 1306 South Main street, Los Angeles, Cal. It will cost, when complete, \$8,000.

H. A. House, of Iliou, N. Y., has leased the garage now in course of construction on Washington street, Utica, N. Y. He has the agency for Mitchell cars.

Milton Wolfe, one of the partners in the Eureka Auto Co., of Lone Tree, Minn., has disposed of his interest to John Rife. The company will continue business under the same style.

Henry Litt and his two sons have opened a garage at the corner of Ninth and G streets, Modesto, Cal. Aside from operating a renting service they will handle several lines of popular-priced cars.

H. E. Dunseth has formed a partnership with Fred S. Beckwith, who has the Abbott-Detroit agency for Spokane, Wash., under the style Abbott-Detroit Sales Co. They have opened salesrooms at 1223 Sprague avenue.

John Bender, formerly connected with the Stevens-Duryea, Thomas and Knox agencies in Chicago, has gone into business on his own account and opened salesrooms at 2437 Michigan avenue. He will handle Garford cars.

Salesrooms have been opened at 110 West Second street, Oklahoma City, Okla., for the display of Penn "30" and "40" pleasure cars and commercial vehicles. J. T. Wheatley and John Sharp are the men behind the enterprise.

The Jacobs & Anderson Auto Supply Co., which has been doing a supply and accessory business on Park avenue, Omaha, Neb., has filed a petition in voluntary bankruptcy. Its liabilities are given at \$1,163 and its assets at \$86.

W. H. Vinal, president of the Motor Car Co., which handles the Nance car in Boston, Mass., has sold his interest to S. S. Anderson and has resigned the presidency. L. W. Abbot has been appointed sales manager of the company.

D. E. Kelly, a farmer near Clinton, Ia.,

has found plowing too slow and has purchased the business and good will of the Clinton Auto & Supply Co., formerly owned by M. J. Dannatt. The company has salesrooms on Sixth avenue.

Canadian Agencies, Ltd., which handled Republic and Moon motor cars at 188 Market street East, Winnipeg, Man., has been adjudged bankrupt and C. H. Newton has been appointed receiver. The creditors expect to realize about 50 cents on the dollar.

J. H. Weller, until recently superintendent of the Matheson Automobile Co., has formed a partnership with one of his former foremen, J. B. Davidson, for the purpose of conducting a garage and machine shop. It will be located at Williamsport, Pa.

The Acme Motor Co., which was organized last month at Worcester, Mass., to take over the business of the D. A. Baldwin Co., has purchased the four-story garage at 22 Commercial street, for \$40,000. The building is 60 x 100 feet and will be used by the Acme company as salesrooms and service department.

R. W. Gallagher, formerly president of the American Motor Car Co., of California, and F. B. Tompkins have formed the Gallagher-Tompkins Co. and opened salesrooms at 1876 Broadway. Tompkins is president of the company, which will handle Selden cars in the territory covered by Manhattan and Long Island.

Clifford Southwick, one of the partners in the Maxwell Automobile Agency, Erie, Pa., has filed a petition in the Superior Court, asking that George McLaughlin, the other partner, be restrained from selling, collecting or purchasing in the name of the firm, pending a dissolution of the partnership, and that a receiver be appointed.

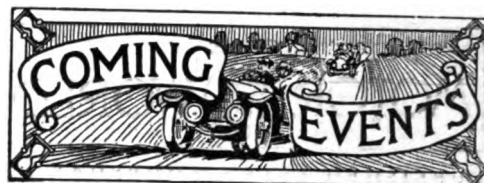
Emulating the policy of several of the larger motor car companies, the Moline Automobile Co., East Moline, Ill., has opened a factory branch in Minneapolis, Minn. It is located at 1401 Hennepin avenue, and is in charge of G. H. Wright. The branch will cover the territory comprising Minnesota, North and South Dakota and western Wisconsin.

The Mooney Automobile Co., which formerly had the Canadian agency for Warren-Detroit cars, with salesrooms on Main street, Winnipeg, Man., has gone out of business. The company had no liabilities and dissolved by mutual agreement between the partners. Warren-Detroit cars in the future will be represented in Winnipeg by the American-Abell Engine and Thresher Co.

Recent Losses By Fire.

Savannah, Ga.—Ford Automobile Co.'s salesrooms, 221 East Broughton street damaged. Loss, \$4,000; not insured.

Toledo, Ohio—Lewis Electric Welding & Mfg. Co., and McNaull Auto Tire Co., 234 Cherry street, damaged by fire. Loss, each company about \$2,500.



December 20, New York City, N. Y.—Annual banquet of the Automobile Club of America at Waldorf-Astoria.

December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

December 30-January 6, Buffalo, N. Y.—Buffalo Automobile Trade Association's annual show in 74th Regiment Armory.

January 2-10, New York City, N. Y.—Importers' salon at Hotel Astor.

January 6-13, New York City—Automobile Board of Trade's 12th annual show in Madison Square Garden. Pleasure vehicles only.

January 10-13, Peoria, Ill.—Peoria Automobile Club's show in the Coliseum.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual national show in New Grand Central palace. Pleasure and commercial vehicles.

January 13-19, Milwaukee, Wis.—Milwaukee Automobile Dealers' Association's annual show in Auditorium.

January 13-27, Philadelphia, Pa.—Philadelphia Automobile Trade Association's annual show in First and Third Regiment Armories.

January 15-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden. Commercial vehicles only.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

January 22-27, Providence, R. I.—Rhode Island Licensed Automobile Dealers' Association's show in the State Armory.

January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association's annual show at Wayne Garden.

January 27-February 3, Pittsburgh, Pa.—Automobile Dealers' Association of Pittsburgh, Inc., sixth annual show of pleasure cars.

February 3-10, Montreal, Can.—Automobile Club of Canada's annual show at Drill Hall.

February 5-10, Pittsburgh, Pa.—Automobile Dealers' Association of Pittsburgh, Inc., sixth annual show of commercial vehicles.

February 5-17, St. Louis, Mo.—Annual show in the Coliseum.

February 12-17, Ottawa, Can.—Ottawa Valley Motor Car Association's first annual show.

February 12-17, Kansas City, Mo.—Motor Car Trades' Association's show in Convention Hall.

OHIOANS STIR THE A. A. A. MEETING

**Cincinnati Delegates Question Minutes—
"Deep, Dark Hints" Result—Few
Changes of Officials.**

Robert P. Hooper, of Philadelphia, Pa., was re-elected president of the American Automobile Association at its annual meeting which occurred Tuesday, the 5th inst., in New York. There were no dissenting voices and his re-election therefore was formally unanimous. It is doubtful, however, that all of the Ohio delegation raised their voices to say "Aye."

In Cincinnati and the vicinity thereof there are at least several delegates who, if they did not possess a grouch, at least inclined to a ruffling of feathers. They created a flurry last year and they repeated the performance on this occasion. They maintained that at the last meeting of the A. A. A. it had been agreed that the annual meeting, just held, would occur in the West. They brought their contention to New York and doubted the accuracy of the minutes which, when read, did not bear out their belief. The minutes nevertheless, were approved by an overwhelming majority.

There were indications that the Cincinnati men did not accept their defeat in good part. They absented themselves from the association banquet which occurred Tuesday night, and, according to one highly-colored story, sought comfort in the company of a one-time and disaffected secretary of the A. A. A., who at present is engaged in selling maps for a private corporation which styles itself the Touring Club of America—which, if true, suggests that the map salesman and the disgruntled Ohioans may do something which will afford at least fleeting entertainment and reading matter for the public. The fact that a Cincinnati man was re-elected third vice-president suggests that the story is a false alarm, but it is as certain that H. L. Vail, of the Cleveland Automobile Club—Cleveland is in Ohio—declared in a public speech that his club had no sympathy with the effort "to disrupt the national organization," which could imply but one thing.

With the exception of the second and fourth vice-presidents the entire board of officers was re-elected, the complete slate of officials being as follows:

President—Robert P. Hooper, Pennsylvania.

First vice-president—Frank M. Joyce, Minnesota.

Second vice-president—Laurens Enos, New York.

Third vice-president—C. L. Bonifield, Ohio.

Fourth vice-president—Ralph W. Smith, Colorado.

Fifth vice-president—F. L. Baker, California.

Secretary—John N. Brooks, Connecticut.
Treasurer—H. A. Bonnell, New Jersey.

Executive committee—A. G. Batchelder, New York, chairman; Robert P. Hooper, president; Lewis R. Speare, Massachusetts; Frank G. Webb, New York; F. T. Staples, Connecticut; H. L. Vail, Ohio; P. J. Walker, California; H. E. Coffin, Michigan; Frank M. Joyce, Minnesota; J. H. Weeks, Pennsylvania; E. C. Smith, Vermont; A. H. Knoll, New York; J. H. Edwards, New Jersey; Dr. A. P. Overgaard, Nebraska; C. M. Robinson, Connecticut; David Beecroft, Illinois; John N. Brooks, Connecticut; Powell Evans, Pennsylvania; P. M. Milner, Louisiana; J. P. Coghlin, Massachusetts; Paul C. Wolff, Pennsylvania; James T. Drought, Wisconsin; S. A. Miles, New York; F. C. Battey, Georgia; Charles E. Doe, Rhode Island; Edwin S. George, Michigan; H. O. Bonnell, New Jersey; H. C. Peck, Virginia; H. B. Race, Florida; H. M. Rowe, Maryland; S. D. Capen, Missouri; H. L. Gordon, Ohio; Oliver Quayle, New York; W. E. Metzger, Michigan; C. H. Verschoyle, Texas; Preston Belvin, Virginia; H. J. Clark, Massachusetts; John A. Wilson, Pennsylvania; W. E. Moyer, Iowa; W. M. Stevenson, Massachusetts.

The chairmen of the various boards are: Legislative—Charles Thaddeus Terry, New York; Good Roads—George C. Diehl, New York; Touring Information—Howard Longstreth, Pennsylvania; Contest—William Schimpf, New York.

Although the constitution permits the executive officers to say where the annual meeting shall be held, as a matter of courtesy and good will and to avoid such misunderstandings as ruffled Cincinnati, the A. A. A. formally voted on Wednesday to hold next year's meeting in Chicago.

The State associations of Nebraska, South Carolina, North Dakota and Montana were formally admitted into the association, while the admission of North Carolina only requires a meeting to perfect its State organization. During the year the individual membership increased from 35,000 to over 51,000, while the number of State associations rose from 36 to 42, and that of affiliated clubs from 249 to 314.

The report of the treasurer showed that for the last year the receipts were \$44,678.60 and the disbursements \$41,385.53, which leaves a balance of \$3,293.07, though there are other available assets, principally dues payable, which will bring up the balance to approximately \$5,000.

According to the report of the Contest Board, the number of events sanctioned during the past year decreased to 116 as against 175 for the previous year and 127 two years ago.

In the report of the committee on resolutions reference was made to the recent death of Chairman S. M. Butler of the contest committee, who lost his life while on the Glidden tour, and a resolution will be drawn up, adequately expressing the great loss to the association in the death of such

an efficient and thoroughly respected official.

Realizing that in its endeavors to have the Yellowstone National Park opened to automobile traffic it could do little alone, the Bannock County Automobile Club, of Pocatello Idaho, requested that the A. A. A. have its other Western State associations approach their legislators on the subject. Support was pledged to the Bannock County Club, and a bill to have the park opened will be drafted for introduction into Congress, either by that organization or by the A. A. A. itself.

"Regulars" Win in Wolverines' Election.

At the annual meeting of the Wolverine Automobile Club, which was held in Detroit, Mich., on Tuesday last, December 5th, the "insurgents"—good-naturedly so called—were snowed under, only one of the entire ticket escaping the blizzard. Both tickets were headed by H. J. Porter, who naturally was elected president, the other officers chosen being as follows: First vice-president, Charles F. Gilmour; second vice-president, W. F. Zimmer; treasurer, E. W. McGookin; directors, the officers and William G. Bryant, H. H. Robinson, William P. Culver, and Charles A. Grant.

The secretary of the club in his report covering the past year called attention to the phenomenal growth of its membership, which has increased from 317 to 1,441 members in good standing. They include the majority of Detroit's large colony of automobile manufacturers, parts and accessory manufacturers and dealers, and most of their staffs. The treasurer's report showed the finances of the club to be in excellent condition, its receipts during the fiscal year having been \$7,882 and its disbursements \$4,211, leaving a cash balance of \$3,671. The organization, which now has quarters in Hotel Griswold, has in view the building of a clubhouse of its own.

Next Glidden, Minneapolis to New Orleans.

In all probability there will be no unseemly doubts and postponements affecting the Glidden tour of 1912, such as marked the preparation for this year's event. St. Paul and Minneapolis want the tour and already have set about getting it, and as interest in New Orleans also is stirring the Minnesota people are in touch with the Louisianans and as a result there is every prospect that the route of next year's tour will be from Minneapolis to New Orleans, which will not be exactly a route for "tenderfeet" to follow. The Minnesota motorists, however, have promoted so many grueling endurance contests—notably from the Twin Cities to Helena, Mont.—that they know what they are doing in this instance. The clubs in both cities have taken formal action and their officials already are in touch with the A. A. A. officials. There is small doubt that the Twin Cities will be able to get the 1912 tour almost for the asking.

NEW YORKERS BUSY AT ALBANY

State Association Elects Officers, Banquets
and Listens to Notable Men—Governor
Dix Expresses Co-operation.

Totally eclipsing all previous records for interest and attendance, the annual convention of the New York State Automobile Association which was held at the Hotel Ten Eyck in Albany, N. Y., on Saturday last 2d. inst., was by far the biggest and most important gathering of the kind that ever has taken place since the banding together of the various local clubs into a State organization. In all something over 50 automobile clubs were represented by the 300-odd delegates from every section of the State who attended. For comparison it is merely necessary to state that last year's representation was scarcely one-third as great.

With the exception of Secretary J. Arthur Ritchie, of Albany, who was re-elected, all the officers elected are new to their positions, A. J. Deer, of Hornell, N. Y., taking the presidency. Laurens Enos, of Buffalo, was the man originally slated for president to succeed Frank G. Webb, of Brooklyn, but press of business necessitated his withdrawal. The other officers elected were as follows: Vice-presidents, H. C. Strong, Rochester; Howard Martin, Albany, and Arthur B. Maynard, Utica; treasurer, Fay C. Parsons, Cortland; delegates-at-large, Charles Thaddeus Terry, New York; H. A. Meldrum, Buffalo, and A. G. Batchelder, New York. Watertown, Amsterdam and Plattsburg were admitted to membership in the State association.

The convention was split up into two sessions, one in the afternoon and one in the evening, the last session being terminated with a banquet, at which Governor Dix was the guest of honor. He was escorted by the delegates from the State House to the Ten Eyck, where he spoke at length on the necessity for good roads, and drew attention to the active part which the Federal government has taken in the building and maintenance of highways. During the course of his address he favored abolishment of grade crossings by the State and brought out the fact that in the past year the United States government has expended an average of \$27 a mile for repairing its highways, as against \$593 a mile which has been spent in Great Britain during the same period of time. He earned hearty applause when he declared that "opponents of good roads are brakes on the wheels of progress." As a matter of fact a good part of the time at both sessions was taken up by discussions on the roads question, seven of the papers that were on the list having to do with the subject in its various phases.

That the movement for good roads eventually will bear fruit was the almost uni-

versal opinion, and that in the not far distant future those who are at present designated as the "Fathers of good roads" will be ashamed of their titles in view of the reforms which soon are to take place is the expressed sentiment of State Engineer John A. Benschel. "There is danger in making this distinction at the present time," he said, "and it seems to me that it will take but a few years before many of the roads which now are referred to by their so-called 'fathers' with pride, will be abandoned, cast aside, and it will be a different proposition to find those who are willing to 'father' the responsibility of their existence."

The abolishment of grade crossings was another subject which came in for a considerable share of the discussion, and the association went on record as being in favor of this proposition, as well as the proposition to enforce the carrying of lights by all vehicles, regardless of their propelling power, after dark. The question of the passing of laws designed to regulate the use of automobiles also came in for a share of attention and though the idea expressed in the views of State Superintendent of Insurance William H. Hotchkiss to the effect that it is up to the people themselves to obstruct the passage of bad laws is not new, its reiteration serves to give it emphasis. He warned the association against mixing in politics.

Of the other speakers who addressed the meeting, Albert S. Callan, father of the present automobile law in New York State spoke on "Automobile Legislation," and frankly called the registration fee a tax and prophesied that it would be doubled within ten years. George C. Diehl, of Buffalo, and chairman of the Good Roads Committee of the American Automobile Association, spoke on "Automobile Traffic in Its Relation to Good Roads," Harold Parker, former Chairman of the Massachusetts Highway Commission, spoke on "The Dust Nuisance," which he said was best allayed by use of the right oil in the right way. Secretary of State Edward Lazansky spoke on "The Automobile Bureau and Its Plans for 1912," and State Superintendent of Highways Charles E. Treman spoke on "The Maintenance of New York State's Highways." He said: "The more I have studied and become familiar with the great problem of highways the more it seems to me from a business standpoint that the so-called highway improvement movement has in this State, as in every other State begun at the wrong end. What is really needed are 50,000 miles of good serviceable roads, instead of 14,000 miles of boulevards and 66,000 of only fair or poor roads. By the judicious use of materials found locally, at an average cost of less than \$500 a mile, roads could be put in very good condition."

A. G. Batchelder, Oliver A. Quayle, Laurens Enos, Lewis R. Speare, A. J. Deer and W. Pierrepont White also spoke, the

latter favoring another \$50,000,000 issue of State bonds for road improvement.

Before the meeting was adjourned it was definitely decided to hold the next convention at Utica, N. Y., and it is confidently expected by President Deer that no less than 1,000 representatives will be present, for it is his intention to swell the membership in the association to that figure in the interim.

Germany to Hold Small Car Road Trials.

The abandonment of plans for running the Prince Henry tour in 1912 left the Germans' way open for an international reliability tour for small cars of from five to eight horsepower, to be held on May 12-15, 1912, over a total distance of a little more than 1,200 kilometers, or 750 miles. The tour which is to be held under the auspices of the Kaiserlicher Automobil Club and the Allgemeiner Deutscher Automobil Club, will start from Berlin via Mittenwalde, Frankfurt - on - the - Oder, Schwiebus, Neustadt and Posen, where the first night stop will be made; distance, 296 km. On the second day the route will again go through Neustadt and Schwiebus, but will then turn south to Gruenberg, Lueben and Breslau, where the second night will be passed; distance of the second leg, 302 km. The third day a trip through the mountains of Silesia, over 316 km. will occupy the attention of the tourists, during which the cities of Glatz, Neisse, Oppeln, Brieg and Ohlau will be visited. The fourth and last day the motorists will be required to cover the 281 km. between Breslau and Dresden, the capital of the Kingdom of Saxony, touching Freiburg, Goerlitz and Bautzen.

Chicago "Insurgents" Are Outvoted.

As was the case last year, the annual election of officers of the Chicago Motor Club, held in the Illinois city Tuesday, 4th inst., resulted in a close victory for the regulars. It was hotly contested, for although over 500 members cast ballots, Charles E. Gregory defeated John M. Kelly for the presidency by only 25 votes. With Gregory the entire ticket which he headed went into office, a tie between David Beecroft and W. D. Foreman for a directorship being waived in favor of the latter. Those elected are: First vice-president, Gaylord Warner; second vice-president, Richard J. Finnegan; secretary, W. E. Stalnaker; treasurer, Henry Paulman; directors, J. P. Frisby, H. N. Fowler, W. D. Foreman, W. J. Zucker, E. A. Hearne; auditing committee, L. R. Campbell, Frank X. Mudd, W. J. Boone.

New Wellington (O.) Club Formed.

Wellington (Ohio) motorists have organized under the name of the Wellington Motor Club, with the following officers: President, O. J. Baumgardner; secretary-treasurer, R. C. Bennett. The club will affiliate with the Ohio State Automobile Association.

How Bruce-Brown Played Part of "Repeater"

His Victory in Grand Prize Race Forms Fitting Climax to Savannah's Carnival of Speed—Completes 411 Miles in 331 Minutes—Contest Marked by Kaleidoscopic Changes of Leadership—Decision Not Reached But Future Races in Doubt.



"GUESS WHO!"

Bruce-Brown came back, too—came back and won one of the longest road races ever run and in record time, as well. Lately it has become quite a habit, this repeating. Grant started it by winning the Vanderbilt two years running. Then Herrick did the same thing with the famous desert race out West, and now Bruce-Brown has taken his turn at repeating. But Bruce-Brown's performance eclipses the others completely, for the Grand Prize race which he won at Savannah on Thanksgiving Day, November 30th, is next to the longest road race that ever was run—last year's Grand Prize was about four miles longer—and to win it twice in succession, in addition to setting up a new world's record in the bargain, surely is "going some," and a little bit more.

And what a howl of delight went up as the popular Fiat pilot rolled over the line that marked the start and finish of the 17 miles circuit for the 24th and last time and was officially declared the winner. Though the race was one of the greatest fights that ever has been put up, and even to the last lap nobody was by any means sure who would be the winner, spectators in the jammed grandstands seemed to sort of feel that Brown would win—and they were not disappointed. His time for the 411.36 miles

was 331 minutes and 29.13 seconds, which figures out at the rate of 74.45 miles an hour. Though this is some four miles an hour faster than he drove last year, when he won with a Benz, rooters for the famous German car can have little to complain of, for Eddie Hearne, who drove one of them and finished in second place, just two minutes and four seconds behind Bruce-Brown, led him by a comfortable margin for 11 consecutive laps, from the 9th to the 19th. There was nothing spectacular about Hearne's driving. Of the contenders, he drove one of the most consistent races; not once did he get under the 13 minute mark for a circuit.

As a matter of fact there were only four drivers who did get under the 13 minute mark. Bruce-Brown was the first man to do it, and he romped around on his second lap in 12 minutes 47 seconds, which is just about 80 miles an hour. Victor Hemery, in a Benz, was the only driver to eclipse this mark, and his time of 12 minutes 46 seconds stands as the fastest made during the race; his average speed on this lap was 80.71 miles an hour. Similarly, none of these four drivers, Bruce-Brown, Bragg, Wagner and Hemery, was able to get under the 13 minute mark more than five times. Bruce-Brown did it in his second, third,

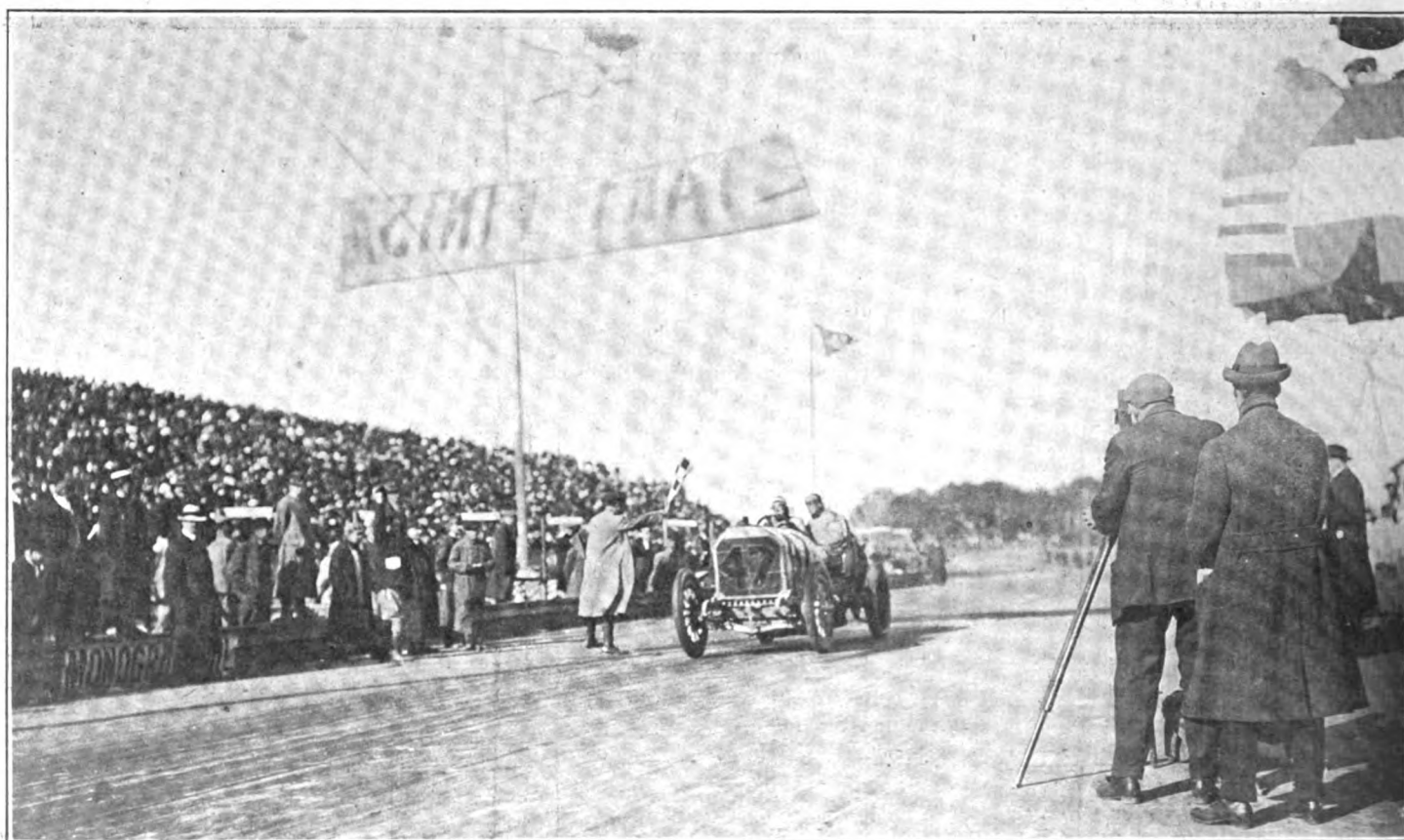
ninth, tenth and twenty-third laps; Bragg did it in his second, fifth, twelfth, twenty-third and twenty-fourth laps; Wagner did it in his second, eighth, ninth, twelfth and fourteenth laps, and Hemery in his fifth and seventh laps.

Ralph De Palma, in a Mercedes, another German car, annexed third honors, and with Bragg, in a Fiat, fourth. American cars were pretty well shut out from the prize money. Their glory was none the less, however, for every one of them that was running when the race was called off had considerably less piston displacement than the first four cars to finish. Louis Disbrow, Pope-Hartford, was fifth, his being the first American car to finish. Of the others, the performance of the two Abbott-Detroit cars, driven by Limberg and Mitchell, really was remarkable. With just about half the piston displacement of any of the other cars, they ran consistently and finished in sixth and seventh positions, having worked up from 15th and 16th positions against cars of double and triple the power. Mitchell covered 377 miles in 374 minutes, which is at the rate of 60.5 miles an hour, and Limberg was only a little slower, his time for 359 miles being 374 minutes; his average was 57.5 miles an hour.

Ralph Mulford, in the Lozier, was the



BRUCE-BROWN (FIAT) IN THE ACT OF "REPEATING" FOR THE SECOND TIME



WHEN HEARNE (BENZ) WAS GIVEN THE CHECKERED FLAG

other American combination for which great hopes were entertained, and up to the 23rd lap his chances of winning were on a par with those of Bruce-Brown and Hearne, who were immediately ahead of him in first and second places. But though he had worked up from ninth position to third, and for several laps had been second, disaster overtook him in the 23rd lap and he was forced to retire with a broken short driving shaft.

Though the spectators sat or stood in tense excitement during the continuance of the whole race, it was not until after Mitchell in his Abbott-Detroit had crossed the line and the race was called off that the real demonstration took place. Immediately, everybody in the grandstand tried to crowd around Bruce-Brown's Fiat at once.

gold cup presented by the Automobile Club of America and \$4,000 added, to say nothing of the "incidentals" offered by the different tire and accessory manufacturers. Not that Brown needs the money, however, for if not a millionaire, he is well-to-do. Still, "every little bit added to what you've got makes just a little bit more," as some one or other has remarked, and he did not refuse it. Hearne's share in the distribution of the prize money was \$2,000, and De Palma received \$1,000—not including the various "dots" added as the incentive for the use of particular equipment, which probably swelled these figures to double that amount.

The day of the race broke clear and cold—a little too cold, perhaps, for the drivers, as they sped away from the starting line

complete list and the order of start being as follows: Louis Wagner (Fiat); Louis Disbrow (Pope-Hartford); Charles Basle (Buick Hundred); L. A. Mitchell (Abbott-Detroit); Ralph Mulford (Lozier); Robert Burman (Marmon); Eddie Hearne (Benz); David Bruce-Brown (Fiat); Harry Cobe (Buick Hundred); Carl Limberg (Abbott-Detroit); Cyrus Patschke (Marmon); Erwin Bergdoll (Benz); Caleb Bragg (Fiat); Victor Hemery (Benz); Ralph De Palma (Mercedes); Spencer Wishart (Mercedes).

With the last of the roaring cars away, spectators settled down in their seats and listened to peanut vendors and program boys and scrutinized their score cards, pencils poised, to score the first of the bunch to appear in the stretch. That Wagner would be the first one around scarcely was



THE QUICK AND THE DEAD—DE PALMA IN FULL CRY; HEMERY AND BERGDOLL DOWN AND OUT

In a second he was the center of a seething mob of souvenir hunters, well-wishers, photographers, newspaper men and just plain spectators. But as was the case last year, Mrs. Bruce-Brown, his mother, was the first one to be allowed to get near him, and as she planted a kiss on his oil-be-grimed face cameras clicked. Later she had to do it all over again for the moving picture men had missed the scene.

Then it was that he was presented with a wonderful bouquet of flowers and praised and congratulated, and it is safe to say that he was photographed just a few more times in a minute than the most popular actor or actress or ball player ever was. Literally the crowd was in a frenzy of excitement and Brown was hoisted to the shoulders of his helpers and borne in triumph up and down before the stand, just as he was last year, happy and smiling, for he had achieved what no other man ever had achieved before and rightfully had earned the plaudits of the multitude.

His prize for winning the race was the

and flew down Ferguson avenue at a speed well over 100 miles an hour, and undoubtedly disagreeable for the thousands of spectators who crowded the grandstand and the sides of the course. If the crowd that turned out for the Vanderbilt was a big one, then the crowd that turned out for the Grand Prize was tremendous. There was not a seat in the grandstand to be had for love or money, and for most of its entire length the course was well sprinkled with spectators. But they stayed behind the ropes, however, for the militia which served so efficiently in the Vanderbilt was on duty for the Grand Prize, and, needless to say, there were no accidents of any kind.

Long before the time of the start, which had been set for nine o'clock, the 16 cars which were entered were lined up before their pits, and promptly on the hour Wagner, in his big Fiat, as the first of the contingent to get under way, was given the word, and the race was on. The rest of the drivers followed at 30-second intervals, the

unexpected, and he was followed immediately by Disbrow, his old reliable Pope-Hartford, slightly changed in appearance but still emitting the same regular exhaust, very low in tone and suggestive of power. According to the order of start, Charles Basle in his Buick Hundred was the next man to be expected, but instead Mulford next put in an appearance, white streamers flying from the helmets of both occupants of the white Lozier, which surely was "moving some," as more than one spectator remarked. Mulford had passed both Basle and Mitchell (Abbott-Detroit), and after all the other cars had passed and their times had been computed, Bragg in his Fiat was first, his time for the lap—13 minutes and 1 second, being the fastest. Eddie Hearne was next and De Palma with his Mercedes was third. Hemery, of whom great things were expected in view of his performance last year, was fourth, having worked up from the back of the field, and the others passed much in the order in which they started.

The course was in prime condition. As has been told, it was more than carefully groomed and manicured for the Vanderbilt race, and in the interim it had been still further looked after and fairly gone over with a fine-toothed comb. At least it was gone over with brushes, for they had the convicts out with brooms, and every little stone was chased off the road into the

mon, fourth. Patschke, Burman's team mate, in another Marmon, was sixth. Burman held his place as fourth only a very short while, however, as he was forced out on the next round with a broken magneto. It was in this lap, the fifth, that Hemery made his record smashing circuit, his time for the lap being 12 minutes and 46 seconds, and his rate of speed 80.71 miles an

of greater things. Spencer Wishart, who was just ahead of him in 12th position, was the next man to retire, his giant Mercedes going bad with a cracked cylinder in the next lap.

This was in the eighth lap of the race, and Patschke in his Marmon then was leading by a comfortable margin. In attempting to take a corner too fast, however, the car was overturned and Patschke's chances were forever lost. Neither he nor his mechanic was hurt beyond a severe shaking up. At this time Hearne was second and Louis Wagner in his Fiat was third, with Mulford fourth and Bragg fifth. Bruce-Brown was sixth, in which position he had been for the last three laps.

Charles Basle, with his big Buick Hundred, was the fourth man to come to grief during the three laps. He was running in eighth position at the time and running well, when a cylinder head blew off and he had to retire. Thereafter things settled down to a pretty steady grind. Eddie Hearne had succeeded in working his Benz up into first place at the end of the ninth round, and from then until the 19th lap he could not be displaced. Though Bruce-Brown had driven a remarkably consistent race up to this point, from the 10th lap to the end his performance was still more consistent. It was so much so, in fact, that he never once dropped below fifth place, and the only time he got that far back was when he stopped for tires and gasoline and oil. But he immediately got into his



BASLE PASSING PATSCHKE ON A LONELY TURN

ditches. The drivers had just one little kick coming and that was that the turns had been banked. They kicked about this, too, in the Vanderbilt race, for there is hardly one of them but would rather have had them left flat. It is the consensus of opinion that with banked turns there is too much tendency to take them too fast. With flat turns drivers are inclined to be more cautious and the hazard is less.

In the second lap, Bragg still held his lead but De Palma required nearly twice as much time as he did for the first lap, the result being that he dropped back to fifth place, both Wagner and Hemery running in ahead of him in that order. Brown still retained second place, his time of 12 minutes and 47 seconds being just one second slower than the record lap made by Hemery later in the race. At the end of the third lap there was very little change in the positions of the leaders, the first four to cross the line being Bragg, Bruce-Brown, De Palma and Hearne. Of the others, all were running consistently except **Harry Cobe, who was forced to retire** at the end of his second round because the steering mechanism of his Buick Hundred became deranged. He was not seen again.

In the fourth lap, De Palma moved up from third to first place. Bragg, who had been first, being forced back to third by tire troubles, and Brown, who up to that time had been second, going back to ninth place for the same reason. Hearne then became second, and Bergdoll, who had been steadily pushing his big Benz to the front, nosed into third place, Burman in his Mar-

mon. He had been having an unusual amount of ignition trouble and in the seventh lap he quit for good.

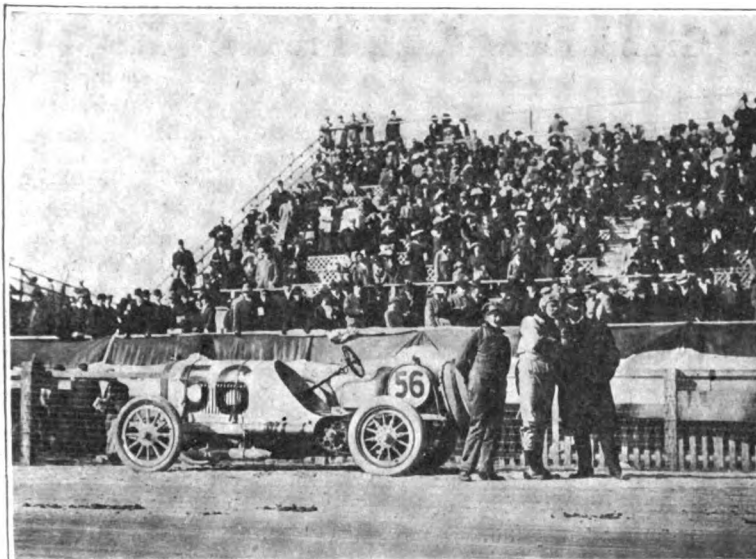


LIMBERG (ABBOTT) IN THE WAKE OF HEARNE'S BIG BENZ

In the next three laps things happened fast and furiously, and when everything had been duly tallied on the score boards at the end of the 10th lap, there were but nine survivors, four more of the contestants having stopped by the roadside and quit. Bergdoll was the first of the four to succumb, carburettor trouble in his seventh lap being the cause. He then was running in 13th position and giving promise

stride again and forged steadily to the front.

It is, perhaps, needless to say that Wagner was almost as much a favorite as was Bruce-Brown, and when he was forced out in his 14th lap because of a damaged steering gear, a wave of disappointment swept over the spectators. He had driven a perfect race replete with the usual exhibition of Wagner headwork, and had by steady

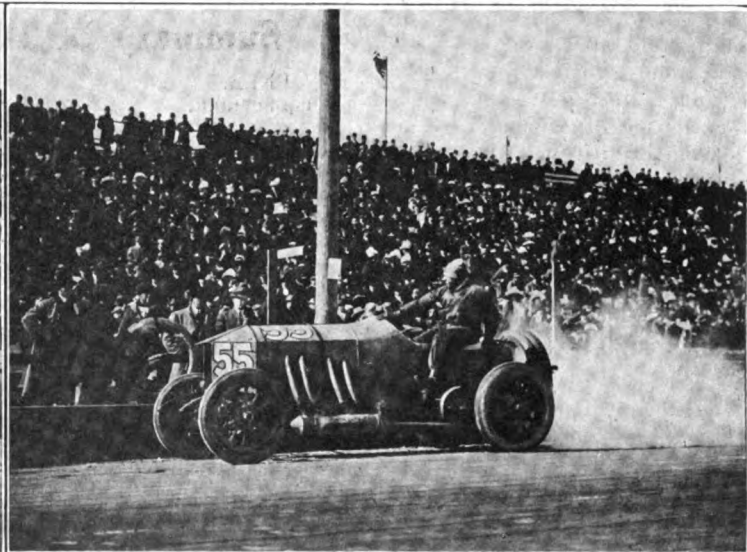


HEMERY EXPLAINS "HOW IT HAPPENED"

driving worked up into second place when the mishap which put him out of the race occurred.

It was at about this time that stops at the pits became most numerous, for with half the race over gasoline and oil was beginning to run low, and several of those who had not had occasion to change tires stopped now in order to be on the safe side when the hard battle in the last few laps should be fought. Pit work by attendants was not all that it might have been. In several instances it was almost a case of "too many cooks spoil the broth"; when a car would stop at its pit immediately a swarm of mechanics would surround it, and though they were not allowed to do anything to the cars, they did get in the way, and some of the drivers were in anything but an enviable frame of mind when they finally were able to get away.

In the 17th lap, there were only eight cars left in the race, and Hearne in his Benz was leading the bunch, with Mulford



DE PALMA STOPS FOR A TIRE CHANGE



BRUCE-BROWN'S GRAND PRIZE SMILE

second, less than one minute behind him, and Bruce-Brown third. De Palma was fourth, which position he held for the next five laps, and Bragg was fifth, and he also held the same position for the next five laps. Disbrow was sixth, and the two Abbott-Detroits, with Mitchell and Limberg up, were seventh and eighth, respectively. At the end of the 18th and 19th laps, the positions were exactly the same. In the 20th lap Hearne and Bruce-Brown changed places, Bruce-Brown moving up into first place and Hearne going back to third. Except for this change, the positions remained the same, and with only four laps to go it was just as hard to pick the winner as it was at the start of the race.

It was in the 22nd lap that probably the greatest excitement of the whole race obtained. Hearne then was in second place, he having moved up from third in the previous lap and when he stopped at the pits for a tire a groan went up from the grandstand. Mulford was the next around, and



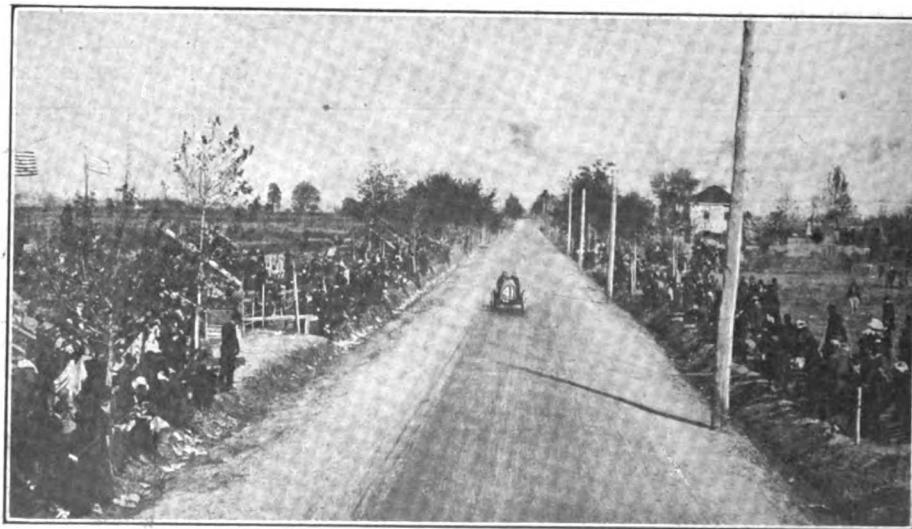
HEARNE AND MULFORD ENGAGE IN A BRUSH PASSING THE GRANDSTAND

Summary of the Grand Prize Race, Free-for-All, 411.36 Mi

Driver and Car	Piston Displacement	Laps—		1	2	3	4	5	6	7	8	9	10
		Elapsed Time	Distance	17:14	34:28	51:42	68:56	85:70	102:84	119:98	137:12	154:26	171:40
David L. Bruce-Brown, Fiat.....	588.0	Position	.....	13:07	25:54	38:52	58:31	72:17	85:31	98:38	111:45	124:52	137:59
Eddie Hearne, Benz.....	928.0	Position	.....	13:07	12:47	12:58	19:39	13:46	13:14	13:07	13:07	13:07	13:07
Ralph De Palma, Mercedes.....	579.0	Position	.....	13:43	27:02	40:19	53:34	66:54	80:16	95:30	110:44	125:58	141:12
Caleb S. Bragg, Fiat.....	588.0	Position	.....	13:15	26:25	39:49	53:08	68:20	86:06	99:29	112:53	126:16	139:40
Louis Disbrow, Pope-Hartford.....	570.2	Position	.....	13:01	25:51	38:51	54:25	67:23	82:38	95:38	108:38	121:38	134:38
L. A. Mitchell, Abbott-Detroit.....	349.9	Position	.....	13:01	12:50	13:00	15:34	12:58	15:15	13:00	13:00	13:00	13:00
Carl Limberg, Abbott-Detroit.....	349.9	Position	.....	14:55	29:27	43:57	58:39	73:12	87:47	102:15	116:40	131:05	145:30
Ralph Mulford, Lozier.....	544.6	Position	.....	14:55	14:32	14:30	14:42	14:33	14:35	14:28	14:28	14:28	14:28
Louis Wagner, Fiat.....	588.0	Position	.....	16:39	32:43	48:52	64:50	80:55	96:57	112:45	128:33	144:21	160:09
Charles Basle, Buick-Hundred.....	593.7	Position	.....	16:39	16:04	16:09	15:58	16:05	16:02	15:48	15:48	15:48	15:48
Cyrus Patschke, Marmon.....	496.2	Position	.....	16:09	31:54	47:30	63:00	78:47	94:17	111:53	128:23	144:53	161:23
Spencer Wishart, Mercedes.....	579.0	Position	.....	16:09	15:45	15:36	15:30	15:47	15:30	17:36	19:02	20:28	21:54
Erwin Bergdoll, Benz.....	928.0	Position	.....	13:45	27:20	40:59	54:46	68:06	81:54	95:37	109:20	123:03	136:46
Victor Hemery, Benz.....	928.0	Position	.....	13:45	13:35	13:39	13:47	13:20	13:48	13:43	13:43	13:43	13:43
Robert Burman, Marmon.....	496.2	Position	.....	13:18	26:16	42:00	55:32	68:40	81:40	96:42	111:44	126:46	141:48
Harry Cobe, Buick-Hundred.....	593.7	Position	.....	15:02	29:54	44:28	58:46	75:56	90:08	104:01	118:03	132:05	146:07
		Time of Lap	.....	15:02	14:52	14:34	14:18	17:10	14:12	13:53	13:35	13:17	12:59
		Elapsed Time	.....	13:59	27:59	41:25	54:46	68:10	81:32	94:55	108:17	121:40	135:02
		Position	.....	10	11	8	6	4	2	1	1	1	1
		Time of Lap	.....	13:59	14:00	13:26	13:21	13:24	13:22	13:23	13:23	13:23	13:23
		Elapsed Time	.....	13:37	27:19	40:07	53:55	67:20	80:45	94:16	107:41	121:06	134:31
		Position	.....	6	8	14	14	13	13	12	12	12	12
		Time of Lap	.....	13:37	13:42	42:48	13:48	13:25	13:25	13:31	13:31	13:31	13:31
		Elapsed Time	.....	13:37	27:14	40:48	54:10	70:45	99:19	137:05	174:41	212:17	249:53
		Position	.....	6	7	5	3	7	12	13	13	13	13
		Time of Lap	.....	13:37	13:37	13:34	13:22	16:35	28:34	37:46	46:58	56:10	65:22
		Elapsed Time	.....	13:17	26:23	39:07	52:58	66:44	80:29	94:14	108:00	121:45	135:30
		Position	.....	4	4	15	15	14	14	14	14	14	14
		Time of Lap	.....	13:17	13:06	62:44	47:51	12:46	25:11	12:57	12:57	12:57	12:57
		Elapsed Time	.....	14:01	27:35	40:58	54:22						
		Position	.....	11	10	6	4	Broken magneto.					
		Time of Lap	.....	14:01	13:34	13:23	13:24						
		Elapsed Time	.....	15:39	31:26			Broken steering gear.					
		Position	.....	14	14			* Running when race started.					
		Time of Lap	.....	15:39	15:47			† Broken driving shaft.					



"MANICURING" THE COURSE



WAGNER (FIAT) ON ONE OF THE LONG, STRAIGHT STRETCHES

he, too, stopped, and his stock took a slump, for he was then in third position and it looked as if the stop would eliminate his slim chances. Then Bruce-Brown showed up, and when he pulled up at his pit pandemonium broke loose. Mechanics worked

feverishly to get their several charges out on the road again and going. Mulford was off first, but it was the last that the thousands saw of him, for a short distance from the grandstand the short shaft between the clutch and the change gear mechanism of

Contested at Savannah, Ga., Thursday, November 30, 1911

9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
154:26	171:40	188:54	205:68	222:82	239:96	257:10	274:24	291:38	308:52	325:66	342:80	359:94	377:08	394:22	411:36
124:31	137:19	152:30	166:15	179:27	195:19	208:31	221:47	237:12	250:23	263:46	277:04	290:05	305:24	318:17	331:29.13
5	4	3	3	2	5	4	2	3	3	3	1	1	2	1	1
12:53	12:48	15:11	13:45	13:12	15:52	13:12	13:16	15:25	13:11	13:23	13:18	13:01	15:19	12:53	13:12
122:02	135:22	148:44	162:11	178:27	192:12	206:57	220:24	234:08	248:07	263:07	277:35	290:41	304:42	319:47	333:33.07
1	1	1	1	1	1	1	1	1	1	1	3	2	1	2	2
13:23	13:20	13:22	13:27	16:16	13:45	14:45	13:27	13:44	13:59	15:00	14:28	13:06	14:01	15:05	13:46
126:34	140:06	153:34	167:08	180:42	194:19	208:00	224:55	238:21	251:52	267:25	281:16	294:44	308:12	321:26	334:40.80
6	5	4	4	4	3	2	4	4	4	4	4	4	4	3	3
13:32	13:32	13:28	13:34	13:34	13:37	13:41	16:55	13:26	13:31	15:33	13:51	13:28	13:28	13:14	13:14
123:55	137:11	165:55	178:54	192:02	207:59	221:44	235:17	248:55	261:59	275:07	288:15	309:43	326:03	338:52	351:51
4	3	6	6	6	6	5	5	5	5	5	5	5	5	4	4
13:07	13:16	28:44	12:59	13:08	15:57	13:45	13:33	13:38	13:04	13:08	13:08	21:28	16:20	12:49	12:59
131:27	146:13	170:01	184:44	199:25	214:08	233:59	249:42	276:31	298:15	313:11	327:49	342:34	357:23	372:04	386:44
7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	5
14:37	14:46	23:48	14:43	14:41	14:43	19:51	15:43	26:49	21:44	14:56	14:38	14:45	14:49	14:41	14:40
148:37	165:26	181:45	198:04	214:18	230:34	246:51	270:42	287:17	304:02	320:35	337:32	355:48	374:04	*	
10	8	9	9	9	9	8	8	8	7	7	7	7	7	*	
18:10	16:49	16:19	16:19	16:14	16:16	16:17	23:51	16:35	16:45	16:33	16:57	18:16	18:16		
143:29	159:05	174:39	190:26	206:04	224:41	241:04	257:02	272:51	307:38	336:17	353:02	374:05	*		
9	9	8	8	8	8	7	7	7	8	8	8	8	*		
15:49	15:36	15:34	15:47	15:38	18:37	16:23	15:58	15:49	34:47	28:39	16:45	21:03			
123:03	140:07	154:00	167:39	181:12	194:50	208:28	222:05	235:45	249:28	263:18	277:18	291:13	305:56	†	
3	6	5	5	5	4	3	3	2	2	2	2	3	3		
13:18	17:04	13:53	13:39	13:33	13:38	13:38	13:37	13:40	13:43	13:50	14:00	13:55	14:43		
122:25	136:56	152:14	165:05	179:48	192:36										
2	2	2	2	3	2										
12:48	14:31	15:18	12:51	14:43	12:48										
131:54															
8															

Damaged steering gear.

Cylinder head blew out.

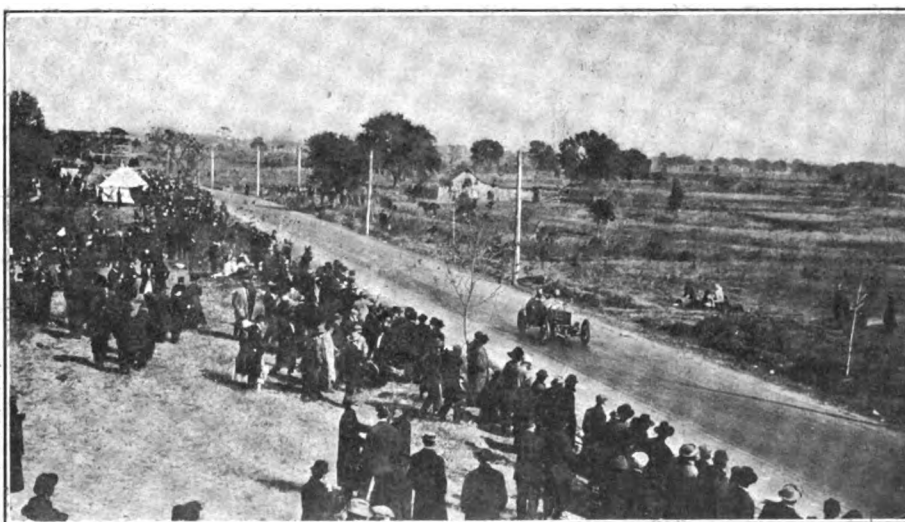
Turned over.

Cracked cylinder.

better trouble.

ion trouble

s called.



DE PALMA ALONE BUT SMOKING THE ROAD

his Lozier snapped under the terrific strain, and he was forced to quit with the prize almost within reach.

The others got away quickly afterward and almost together. Hearne had a little better of the stop and nosed out Bruce-

Brown for first position by the time they came around on the next to the last lap. Another stop for a tire, however, permitted Bruce-Brown to move up into first place again, and he stayed there to the end. With Mulford out, De Palma had moved up into



ANOTHER STATE "MANICURIST"

third place and finished there. For fourth place, Bragg had no real contender, as Disbrow, who finished next and got fifth place, was some 30-odd minutes behind him. Immediately after he crossed the line the race was called off, with no other cars running except the two Abbott-Detroits, which finished in sixth and seventh places, after having been driven gamely by their drivers, Mitchell and Limberg, and having given an account of themselves that might well be envied by some of the others.

As was the case in the Vanderbilt race, the result of the Grand Prize was largely a Bosch-Michelin triumph. Every one of the seven cars to finish was shod with Michelin tires and all of them except Disbrow's Pope-Hartford, on which Splittorf ignition apparatus was used, were sparked by Bosch magnetos. De Palma used a Rayfield carburettor on his Mercedes and the two Abbott-Detroits had mixture furnished them by Scheblers. Bruce-Brown's Fiat, Hearne's Benz, Mulford's Lozier and Disbrow's Pope-Hartford all were equipped with the new Mondex shock preventer.

Though there are those who believe that this will be the last really classic road struggle to be held in America for some time—on the Atlantic seaboard at least—the matter still is very far from settled. Last year application for permission to use the roads for this year's race was made immediately after the race, but this year this was not done, which probably accounts for the feeling. At any rate it costs a lot of money to conduct a race meet of such magnitude as the one which just has been terminated, and as it is principally public-spirited citizens who are looked upon to finance such affairs it has been left with them to decide whether or not Savannah will bid for a repetition of these two blue ribbon events on Southern soil. Though they now incline not to do so, that as soon as Savannahians recover from the excitement and hard work of the last week or so they will commence to lay plans for next year is the opinion of one who is fairly high up in Savannah affairs, though whether the races will be run on a shorter course or under different conditions is problematical. At any rate no Lozier, Benz or Mercedes cars will be seen hereafter in purely speed events, for the manufacturers of these three famous brands of cars have definitely decided to withdraw entirely from racing.

Long Island Run Declared "No Contest."

The prize offered by Charles Herrmann, secretary of the Long Island Automobile Club, for the club's 100-mile non-stop endurance run on November 25th, will have to be contested for again. As stated in the Motor World, last week, all of the contestants went off the course because the confetti which marked the path had been blown away in places and on this account the contest committee of the club has declared the affair "no contest."

SUMMARY OF VANDERBILT CUP RACE, 301-600 CLASS, 291.38 MILES, AT SAVANNAH, GA., NOVEMBER 27, 1911.

Driver and Car	Piston Displacement	Laps—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Ralph Mulford, Lozier.....	544.6	Distance—	17:14	34:28	51:42	68:56	85:70	102:84	119:98	137:12	154:26	171:40	188:54	205:68	222:82	239:96	257:10	274:24	291:38
		Elapsed Time	13:48	27:33	41:11	54:56	68:42	82:31	95:56	109:58	123:39	137:24	151:02	164:43	179:43	193:24	208:07	222:19	236:00
		Position.....	4	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1
Ralph De Palma, Mercedes.....	579.0	Time of Lap..	13:48	13:45	13:38	13:45	13:46	13:49	13:25	14:02	13:41	13:45	13:38	13:41	15:00	13:41	14:43	14:12	13:41
		Elapsed Time	13:33	26:47	40:03	53:46	69:25	84:37	98:10	115:17	129:07	142:49	156:25	170:03	183:30	197:02	210:40	224:26	238:11
		Position.....	1	1	1	1	2	1	3	3	3	3	2	2	2	2	2	2	2
Spencer Wishart, Mercedes.....	579.0	Time of Lap..	13:33	13:14	13:16	13:43	15:39	15:12	13:33	17:07	13:50	13:42	13:36	13:38	13:27	13:32	13:38	13:46	13:45
		Elapsed Time	13:44	27:20	40:55	54:55	71:27	85:33	99:35	113:31	127:17	141:03	154:48	168:37	182:22	196:05	209:53	223:42	246:20
		Position.....	3	3	3	2	5	3	4	2	2	2	5	4	4	3	3	3	3
Harry Grant, Lozier.....	544.6	Time of Lap..	13:44	13:36	13:35	14:00	16:32	14:06	14:02	13:56	13:46	13:46	13:46	13:49	13:39	13:37	13:39	13:50	13:58
		Elapsed Time	13:44	31:09	48:45	62:49	76:59	91:06	105:13	119:17	133:22	147:36	161:44	175:52	190:20	206:11	220:09	234:12	250:23
		Position.....	7	10	10	9	9	9	8	6	5	4	3	3	3	4	4	4	4
E. H. Parker, Fiat.....	588.0	Time of Lap..	14:04	17:05	17:36	14:04	14:10	14:07	14:07	14:04	14:05	14:14	14:08	14:28	15:51	13:58	14:03	16:11	16:11
		Elapsed Time	13:57	27:59	43:17	59:12	74:11	89:01	103:49	118:55	133:55	148:51	163:44	178:31	193:06	207:45	224:08	239:35	254:25
		Position.....	6	5	9	7	7	7	6	4	6	6	6	5	5	5	5	5	5
Louis A. Disbrow, Pope-Hartford	570.2	Time of Lap..	14:32	14:24	14:20	18:32	14:14	14:50	14:48	15:06	15:00	14:56	14:53	14:47	14:35	14:39	16:23	15:27	14:50
		Elapsed Time	14:32	28:56	43:16	61:48	76:02	90:20	104:38	118:57	133:21	147:47	162:09	176:56	191:00	205:39	220:02	234:30	269:02
		Position.....	9	8	8	8	8	8	7	5	4	5	4	6	6	6	6	6	6
L. A. Mitchell, Abbott-Detroit..	349.9	Time of Lap..	16:34	32:46	48:57	65:06	81:17	97:22	113:24	129:28	145:46	161:54	178:02	194:21	210:30	226:43	242:56	259:10	275:24
		Elapsed Time	16:34	49:20	1:08:17	1:26:14	1:44:11	1:62:08	1:80:05	1:98:07	2:16:10	2:34:13	2:52:16	3:10:19	3:28:22	3:46:25	4:04:28	4:22:31	4:40:34
		Position.....	13	11	11	11	10	10	9	7	7	7	7	7	7	7	7	7	7
Carl Limberg, Abbott-Detroit....	349.9	Time of Lap..	16:34	32:46	48:57	65:06	81:17	97:22	113:24	129:28	145:46	161:54	178:02	194:21	210:30	226:43	242:56	259:10	275:24
		Elapsed Time	16:34	49:20	1:08:17	1:26:14	1:44:11	1:62:08	1:80:05	1:98:07	2:16:10	2:34:13	2:52:16	3:10:19	3:28:22	3:46:25	4:04:28	4:22:31	4:40:34
		Position.....	13	11	11	11	10	10	9	7	7	7	7	7	7	7	7	7	7
Cyrus Patschke, Marmon.....	496.2	Time of Lap..	16:34	32:46	48:57	65:06	81:17	97:22	113:24	129:28	145:46	161:54	178:02	194:21	210:30	226:43	242:56	259:10	275:24
		Elapsed Time	16:34	49:20	1:08:17	1:26:14	1:44:11	1:62:08	1:80:05	1:98:07	2:16:10	2:34:13	2:52:16	3:10:19	3:28:22	3:46:25	4:04:28	4:22:31	4:40:34
		Position.....	13	11	11	11	10	10	9	7	7	7	7	7	7	7	7	7	7
Robert Burman, Marmon.....	496.2	Time of Lap..	16:34	32:46	48:57	65:06	81:17	97:22	113:24	129:28	145:46	161:54	178:02	194:21	210:30	226:43	242:56	259:10	275:24
		Elapsed Time	16:34	49:20	1:08:17	1:26:14	1:44:11	1:62:08	1:80:05	1:98:07	2:16:10	2:34:13	2:52:16	3:10:19	3:28:22	3:46:25	4:04:28	4:22:31	4:40:34
		Position.....	13	11	11	11	10	10	9	7	7	7	7	7	7	7	7	7	7
David L. Bruce-Brown, Fiat....	588.0	Time of Lap..	16:34	32:46	48:57	65:06	81:17	97:22	113:24	129:28	145:46	161:54	178:02	194:21	210:30	226:43	242:56	259:10	275:24
		Elapsed Time	16:34	49:20	1:08:17	1:26:14	1:44:11	1:62:08	1:80:05	1:98:07	2:16:10	2:34:13	2:52:16	3:10:19	3:28:22	3:46:25	4:04:28	4:22:31	4:40:34
		Position.....	13	11	11	11	10	10	9	7	7	7	7	7	7	7	7	7	7
Jot Matson, Fiat.....	588.0	Time of Lap..	16:34	32:46	48:57	65:06	81:17	97:22	113:24	129:28	145:46	161:54	178:02	194:21	210:30	226:43	242:56	259:10	275:24
		Elapsed Time	16:34	49:20	1:08:17	1:26:14	1:44:11	1:62:08	1:80:05	1:98:07	2:16:10	2:34:13	2:52:16	3:10:19	3:28:22	3:46:25	4:04:28	4:22:31	4:40:34
		Position.....	13	11	11	11	10	10	9	7	7	7	7	7	7	7	7	7	7
Hughie Hughes, Mercer.....	488.5	Time of Lap..	16:34	32:46	48:57	65:06	81:17	97:22	113:24	129:28	145:46	161:54	178:02	194:21	210:30	226:43	242:56	259:10	275:24
		Elapsed Time	16:34	49:20	1:08:17	1:26:14	1:44:11	1:62:08	1:80:05	1:98:07	2:16:10	2:34:13	2:52:16	3:10:19	3:28:22	3:46:25	4:04:28	4:22:31	4:40:34
		Position.....	13	11	11	11	10	10	9	7	7	7	7	7	7	7	7	7	7
Harry Cobe, Jackson.....	431.9	Time of Lap..	16:34	32:46	48:57	65:06	81:17	97:22	113:24	129:28	145:46	161:54	178:02	194:21	210:30	226:43	242:56	259:10	275:24
		Elapsed Time	16:34	49:20	1:08:17	1:26:14	1:44:11	1:62:08	1:80:05	1:98:07	2:16:10	2:34:13	2:52:16	3:10:19	3:28:22	3:46:25	4:04:28	4:22:31	4:40:34
		Position.....	13	11	11	11	10	10	9	7	7	7	7	7	7	7	7	7	7

* Running when race was stopped.

SUMMARY OF SAVANNAH TROPHY RACE, 231-300 CLASS, 222.82 MILES, MONDAY, NOVEMBER 27, 1911.

Driver and Car.	Piston Displacement	Laps—	1	2	3	4	5	6	7	8	9	10	11	12	13
Hughie Hughes, Mercer.....	300.7	Distance—	17.14	34.28	51.42	68.56	85.70	102.84	119.98	137.12	154.26	171.40	188.54	205.68	222.82
		Elapsed Time...	15:52	30:19	45:23	60:16	75:07	89:54	104:43	119:36	135:11	150:22	165:20	180:23	195:37
		Position.....	4	3	3	2	1	1	1	1	1	1	1	1	1
Louis Heineman, Marmon.....	299.0	Time of Lap.....	15:52	14:27	15:04	14:53	14:51	14:47	14:49	14:53	15:35	15:11	14:58	15:03	15:14
		Elapsed Time...	15:57	31:29	46:41	61:54	77:06	92:21	107:35	122:49	138:07	153:29	170:41	186:19	201:41
		Position.....	5	5	5	5	4	3	3	2	2	2	3	3	2
Joe Nikrent, Marmon.....	299.0	Time of Lap.....	15:57	15:32	15:12	15:13	15:12	15:15	15:14	15:14	15:18	15:22	17:12	15:38	15:22
		Elapsed Time...	16:21	31:58	47:33	63:10	78:42	94:08	109:37	125:07	140:50	156:38	172:27	188:35	204:42
		Position.....	6	6	6	6	5	5	4	4	4	4	4	4	3
W. F. Barnes, Jr., Mercer.....	300.7	Time of Lap.....	16:21	15:37	15:35	15:37	15:32	15:26	15:29	15:30	15:43	15:48	15:49	16:08	16:07
		Elapsed Time...	15:22	30:17	45:07	60:25	75:45	93:56	109:56	124:07	139:31	155:02	170:35	186:13	*
		Position.....	3	2	2	3	2	4	5	3	3	3	2	2	*
Harry Buckley, Case.....	300.7	Time of Lap.....	15:22	14:55	14:50	15:08	15:20	18:11	16:00	14:11	15:24	15:31	15:33	15:38	
		Elapsed Time...	19:53	39:42	58:38	77:23	96:02	130:03	148:53	167:51	188:26	207:45			
		Position.....	7	7	7	7	6	6	6	6	5	5	*		
William Knipper, Mercer.....	300.7	Time of Lap.....	19:53	19:49	18:56	18:45	18:39	34:01	18:50	18:58	20:35	19:19			
		Elapsed Time...	15:19	30:28	45:41	60:49	75:58	91:01	106:07	133:44					
		Position.....	2	4	4	4	3	2	2	5					
Louis Disbrow, Case.....	300.7	Time of Lap.....	15:19	15:09	15:13	15:08	15:09	15:03	15:06	27:37					
		Elapsed Time...	14:38	29:38	44:16	59:23									
		Position.....	1	1	1	1	1	1	2						

* Running when race was stopped.

PERFORMANCE BY LAPS OF CONTESTANTS FOR TIEDEMAN TROPHY, 161-230 CLASS, 171.40 MILES.

Driver and Car	Piston Displacement	Laps—	1	2	3	4	5	6	7	8	9	10
Frank Witt, E-M-F.....	226.2	Distance—	17.14	34.28	51.42	68.56	85.70	102.84	119.98	137.12	154.26	171.40
		Elapsed Time...	18:03	35:46	54:02	71:46	89:15	106:45	124:07	141:24	158:44	176:10
		Position.....	2	2	2	2	2	2	1	1	1	1
Kobert Evans, E-M-F.....	226.2	Time of Lap.....	18:03	17:43	18:16	17:44	17:29	17:30	17:22	17:17	17:20	17:35
		Elapsed Time...	18:41	36:53	54:48	72:33	90:16	108:01	125:46	144:37	162:25	180:12
		Position.....	4	3	3	3	3	3	2	2	2	2
Jack Tower, E-M-F.....	226.2	Time of Lap.....	18:41	18:12	17:55	17:45	17:43	17:45	17:45	18:51	17:48	17:47
		Elapsed Time...	19:23	37:45	58:38	74:19	92:33	110:23	128:16	146:03	163:46	181:33
		Position.....	5	4	5	4	4	4	3	3	3	3
Frank Kulick, Ford.....	176.7	Time of Lap.....	19:23	18:22	20:53	15:41	18:14	17:50	17:37	17:47	17:43	17:47
		Elapsed Time...	20:13	39:10	58:17	83:18	100:54	119:55	139:25	157:31	180:36	201:07
		Position.....	6	5	4	5	5	5	4	4	4	4
M. Roberts, Abbott-Detroit.....	227.2	Time of Lap.....	20:13	18:57	19:07	25:01	17:36	19:01	19:30	18:06	23:05	20:31
		Elapsed Time...	16:23	32:47	49:17	65:49	82:29	99:16				
		Position.....	1	1	1	1	1	1				
H. L. Hartman, Abbott-Detroit.....	227.2	Time of Lap.....	16:23	16:24	16:30	16:32	16:40	16:47				
		Elapsed Time...	18:04									
		Position.....	3									

Blew two cylinders.

Broke cam shaft.

York (Pa.) Has Thanksgiving Meet.

With characteristic freedom from restraint, the so-called South Jersey Motor Club held another of its periodic racemeets on the dirt track at the York, Pa., fair grounds on Thanksgiving Day, 30th, and despite the fact that the course was decidedly sloppy, nothing happened. That is to say very little happened which can be construed to indicate that spectators were kept in a favor of excitement. Eight races in all were carded and with the exception of a mile time trial all were at five miles, and most of them were two-man affairs. John Menker at the wheel of a Kline accounted for five of them in easy fashion, and therefore occupied considerably more than half the limelight.

The summary:

Five miles—Won by John Menker (Kline); second, V. P. Padula (Abbott-Detroit); third, Haupt (Buick). Time 7:37¼.

Five miles—Won by John Menker (Kline); second, Harvey Ringler (Mercer). Time 7:25.

Five miles—Won by John Menker (Kline); second, Harvey Ringler (Mercer). Time 6:46¾.

Five miles—Won by V. P. Padula (Abbott-Detroit); second, William Mullin (Buick). Time 7:23¼.

Five miles—Won by Harvey Ringler (Mercer); second, V. P. Padula (Abbott-Detroit). Time 7:03¾.

One mile time trial—Harvey Ringler (Mercer). Time 1:16.

Five miles—Won by John Menker (Kline); second, Joseph Di Napoli (Knox). Time 7:26½.

Five miles, free-for-all handicap—Won by John Menker (Kline), scratch; second, Harvey Ringler (Mercer), 10 seconds; Earl Seachtist (Kline), 10 seconds. Time 6:25¼.

Galt Chosen to Lead Long Island Club.

At the annual election of the Long Island Automobile Club, held in Brooklyn, N. Y., Wednesday, 6th inst., William Schimpf, head of the Contest Board of the A. A. A., declined a tender of re-election to the club presidency, although he will continue as a trustee. The officers chosen were: President, Clarence H. Galt; vice-president, Charles Herrmann; treasurer, William C. Bolton; secretary, Edward B. Jordan, Jr.; trustees, William Schimpf, Dr. H. H. Price, Frank G. Webb.

Date Set for Bay State Banquet.

Horace G. Kemp, chairman of the Bay State Automobile Association has announced that the annual banquet will be held at Hotel Somerset, Boston, Mass., December 11th. Among the speakers will be Mayor Fitzgerald, President Robert F. Hooper of the A. A. A.; George W. Coleman, president of the Advertising Club of America, Hugh Chalmers of Detroit and George S. Smith, president of the Boston Chamber of Commerce.

STATE RIGHTS AT A. A. A. BANQUET

Terry Discusses Them and Tells When They Become "State Wrongs"—Pope Urges Individual Memberships.

Charles Thaddeus Terry, chairman of the A. A. A. legislative board, easily played the star part at the American Automobile Association's annual banquet, which occurred at the Hotel Astor on Tuesday night last, 5th inst. R. P. Hooper, president of the organization, served gracefully as toastmaster and some other speakers acquitted themselves as creditably. But Terry fairly sparkled; he sent home as many good-humored thrusts, told as many good stories and returned to the well-known subject of Federal automobile legislation in a fashion that so well disguised the worn spots that they were not visible to the naked eye, so to speak. And withal, Terry has mannerisms and a trained delivery that simply compel attention.

"Whenever Federal legislation is attempted," he said in the course of his address, "we promptly bring up against what appears to be a stone wall—the stone wall of State rights. But they are not State rights; they are State wrongs. The rights of the State end when they interfere with the rights of men as citizens of the Nation"—a sentiment that earned applause. Terry went on to declare that there are too many laws—that there is too much legislation for the public good and that not much of it was reasonable, even, in the sense given to that word by the United States Supreme Court. He pointed out that trouble arose from the annual influx of new men into the various legislatures. When they gathered they found that there was nothing for them to do and accordingly they passed laws simply to prove to their respective constituents that they had not been idle and that they had earned their keep. But Mr. Terry believes that the situation is clearing and that the future holds promise.

At the time of its organization, the A. A. A. had held a banquet, but that was comparatively so long ago that nearly every one had forgotten it. The function on Tuesday night, therefore, marks a new dating, and the occasion proved such a happy one that there is small doubt that each year hereafter a similar banquet will follow the work-a-day proceedings of the A. A. A. annual business meeting.

There were about 150 persons present at Tuesday's banquet. The gathering was striking because of the many silvered heads and the heads which were barren of hair, silvered or otherwise, which betokened the substantial character of the A. A. A. Those who occupied the guests' table were: Laurens Enos, Powell Evans, Lewis R. Speare, Preston Belvin, F. M. Joyce, Robert P. Hooper, M. J. Budlong,

Albert L. Pope, Alfred Reeves, Chas. Thaddeus Terry, H. L. Vail, Dr. H. M. Rowe.

Among those present was the mayor of Montpelier, who is also one of the Vermont delegates to the A. A. A. He was not seated at the guests' table nor in fact did he occupy any particular seat for any particular length of time. He visited practically every table in the room, and when not so visiting he assisted the negro orchestra which made music vocal and instrumental while the viands were being disposed of.

The speakers were few and their speeches were short, but each of them had at least one good story to tell that served to keep laughter in action.

Lewis R. Speare, a former president of the A. A. A. and the present head of the Massachusetts State Automobile Association, voiced a plea for good roads and sane driving. He declared that if motorists did not regulate themselves the law would regulate them even more sternly than is now the case.

H. L. Vail, of the Cleveland Automobile Club, who was introduced by the toastmaster as "the best peacemaker we ever had," paid tribute to the usefulness of the A. A. A. and the work which it had performed, the fruits of which, he said, were shared by all, although but a comparative few bore the burden. He remarked that if the work of the organization was but half appreciated it would not require much effort to obtain the 100,000 members which President Hooper had declared was his aim. Reverting to happenings at the business meeting earlier in the day, Vail declared with fine emphasis which taught the assemblage that though he, himself, came from Ohio, he had no sympathy for any attempt to disrupt the organization. He knew that he reflected the sentiments of the Cleveland club and he believed he reflected the sentiments of practically the entire State.

Alfred Reeves, of the United States Motor Co. and the National Association of Automobile Manufacturers, spoke for the trade and voiced its appreciation of the work accomplished by the A. A. A. and of its efforts in the cause of road improvement, of which he recalled to his hearers the late Colonel Albert A. Pope was the real father. Colonel Pope, he said, began the work more than two decades ago, in the heyday of the bicycle and the League of American Wheelmen. All the good that since had resulted was the outcome of those early efforts.

Paying a splendid and deserved tribute to the lamented Colonel Pope and the great work which he had inaugurated and giving him all credit therefor, Toastmaster Hooper introduced a scion of the Pope family seated at the guest table—Albert L. Pope, who modestly expressed his appreciation of the tributes paid his lamented father. He urged the A. A. A. to even greater effort and pointed out that 200,000 members and not merely 100,000 easily is possible if the membership of the individual motorist is sought.

WOMEN CONTENDERS IN HILL CLIMB

Evansville Permits Their Participation in Unsanctioned Contest—"Mere Men," of Course, Go Fastest.

Evansville, which needless to say is in Indiana, departed from the usual order in a hill climbing contest on Thanksgiving Day, November 30, by having not only a class for cars driven by women, but by adopting a book classification for the other events. The affair was under the direction of the Evansville Automobile Club but was not sanctioned by the A. A. A., which prohibits contests between women. While they were a special attraction Charles French, driving a Cole, secured the honors by negotiating the Springer Hill course in 48½ seconds. This was in the free-for-all. Armand Emrich at the wheel of a Buick was a half a second behind. French also won the class for cars of 4½-inch bore, his time being 48¾ seconds. Miss Vetriss Curry drove a Cadillac up the incline in 58 seconds, and Miss Eloise Koch, also at the wheel of a Cadillac, made the trip in one minute and 15¾ seconds. The summary:

Free-for-all—Won by Charles French (Cole), time 0:48½; second, Armand Emrich (Buick), time 0:49; third, Fellwock Auto Co. (Pullman), time 0:51½; fourth, John Wimbberg (Stutz), time 0:55½; A. Sierra (Oldsmobile), time 1:10.

Cars of 4½-inch bore—Won by Charles French (Cole), time 0:58¾; second, Morton Mannheimer (Knox), and Elmer Lehnhard (American), tied, time 0:52; third, J. F. Charley (Locomobile), time 0:52½; fourth, William Scherffius, Jr. (American), time 0:53; fifth, Advance Auto Co. (Buick), time 0:57; sixth, Fellwock Auto Co. (Cadillac) time 0:59.

Cars of 4¼-inch bore—Won by Keck-Gonnerman Co. (Chalmers), time 0:54; second, Echert-Maxwell Co. (Maxwell), time 0:56.

Cars of 4-inch bore—Won by F. W. McNeely (E-M-F), time 0:58½.

Cars of less than 4-inch bore—Won by Korb & Stewart (Ford), time 1:01¾; second, Herbert Laubscher (Cameron), time 1:03; third, Dr. Laubscher (Cameron), time 1:16½.

Ladies' class—Won by Miss Vetriss Curry (Cadillac), time 0:58; second, Miss Eloise Koch (Cadillac), time 1:15¾.

Grand Island Motorists Organize a Club.

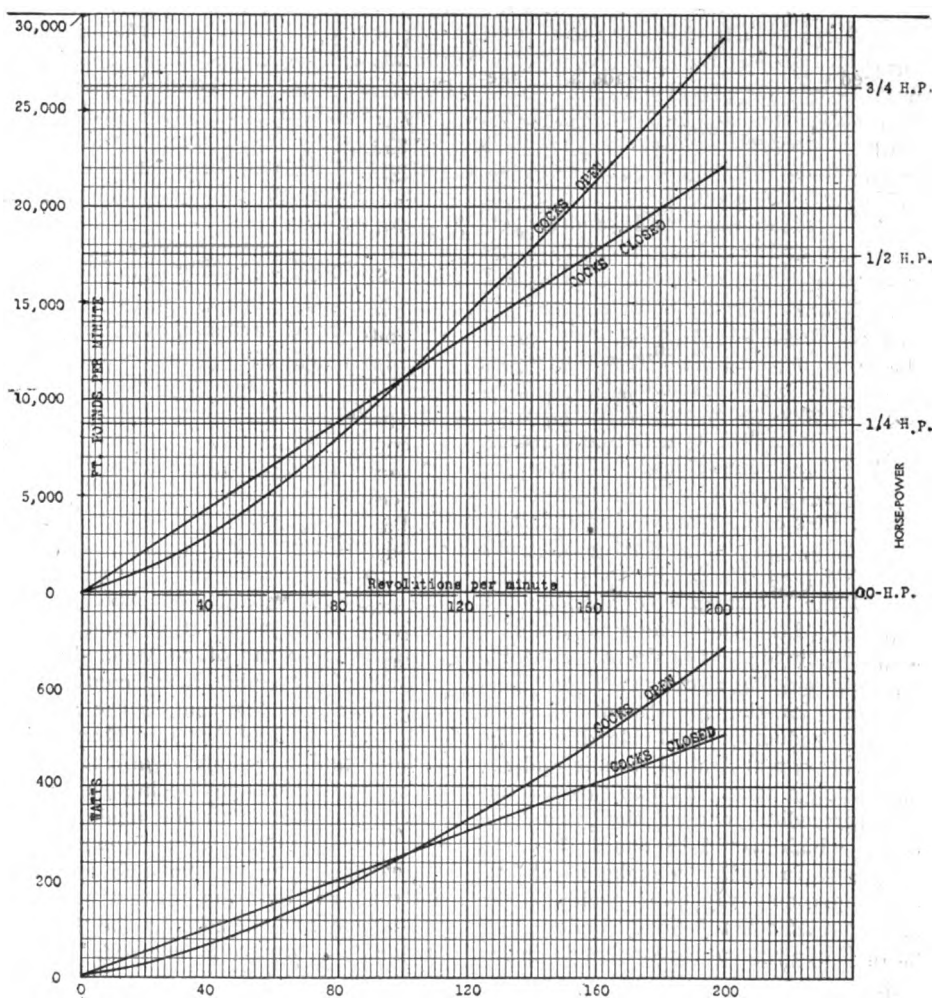
Under the title Hall County Motor Club, motorists of Grand Island, Neb., have organized to affiliate with the A. A. A. State association. The officers are: President, Emil Wolback; vice-president, C. H. Tully; secretary, F. E. Slusser; treasurer, L. M. Talmage; directors, Dr. Sutherland, Oscar Reimers, George WaDechter.

POWER REQUIRED TO START MOTORS

Laboratory Tests Prove That It Amounts to One-half Horsepower—Opening Relief Cocks Adds to Labor.

To the average individual who has had occasion to "spin" his motor, perhaps on a cold day when starting has not been quite as easy as it might be, the knowledge that in doing so he has expended considerably more than one-half horsepower in energy may come as somewhat of a surprise. If he has acted on his own initiative, or at the

tests are interesting because they serve to indicate the amount of actual work which must be performed by the various self-cranking devices which are in use. The motor tested was of the four-cylinder four-cycle type with cylinders measuring 3 9-16 inches bore and 4 3/4 inches stroke. As is shown in the accompanying chart, it required 22,000 foot pounds a minute to revolve the crankshaft 200 times in one minute with the pet cocks closed and nearly 29,000 foot pounds a minute with the pet cocks open. The principal reason that more power is required with the pet cocks open is that the effect of compression in storing energy is lost.



ENERGY ABSORBED IN "CRANKING" 20-HORSEPOWER MOTOR

suggestion of others, and has opened the cylinder relief cocks, ostensibly to make his work easier, he has actually made matters worse for the energy expended then will be considerably more, and probably will be over the one-horsepower mark. All of which was proven in a series of tests which were made in the technical laboratory of the Automobile Club of America.

Aside from being instructive in that they should go far toward settling once and for all the question which has lurked in minds of some as to whether it really is easier to "crank" a motor with the pet cocks open than it is with the pet cocks closed, the

In the lower part of the chart is given the amount of power required as measured in electrical watts, approximately 500 representing the energy expended in revolving the crankshaft 200 times a minute with the pet cocks closed and nearly 700 watts being required for the work when the pet cocks were left open. As a unit of 746 watts is equivalent to one mechanical horsepower it is apparent that five-sevenths of a horsepower is required to start a motor of the size tested at that speed with the pet cocks closed. With the pet cocks open the power required is equal to nearly 700 watts or just under one horsepower.

BELIEVES TWO-CYCLE WILL TRIUMPH

Enthusiast Declares It Will Displace Four-Cycle Motor—His Reasoning and Retort to Skeptics.

As long as there are men to talk and motors to talk about doubtless there will be warm discussions as to what will be the ultimate type of internal combustion engine, and something new always crops up to furnish new subject matter and prevent too much dullness. For example, just as the makers of poppet-valve motors were beginning to feel that they were entitled to sit back a bit and enjoy the feeling that they had worked out a pretty good sort of motor—which they had—Knight pushed his sleeve valve into the limelight, and immediately the discussion started afresh, with any amount of new "dope" on single sleeves, double sleeves, rotary valves, slide valves and their attendant mechanisms.

Unmoved by all the evidences of progress made by the four-cycle type of motor, however, the advocate of the two-cycle principle holds firmly to his belief that all improvements in valves are merely steps leading slowly—very slowly, someone remarks—toward the evolution of the commercially perfect two-cycle motor.

"You can't get away from the conclusion that—barring the advent of a real gasoline turbine—the two-cycle motor will ultimately displace the four-cycle type," emphatically asserted a two-cycle enthusiast a few days since. "Poppet valves, sleeve valves, rotary valves and slide valves all can be made to do the work, and some of them do it beautifully. But what's the use of using valves at all, and what's the use of having an idle, power-absorbing stroke when it is possible to build an engine without valves and with a power impulse every revolution for each cylinder?"

"If all that is true, why haven't two-cycle motors been developed to a point where they are as widely used as are four-cycle motors which, broadly speaking, are the standard type of our day?" queried a skeptic.

"Why?" retorted the two-cycle man with a show of heat. "Why? There are more than several reasons," and then the enthusiast fairly oozed information and "reasons." "It is necessary to go away to the beginning of things," he said—"that is, to 1885—when Gottlieb Daimler, over in Germany, began building four-cycle gasoline motors of 12 horsepower weighing 1,300 pounds—featherweights in comparison with contemporary steam power plants of equal capacity. These worked so well and attracted so much attention that two years later motors were shipped to the United States and business arrangements were made for their sale and, ultimately, for their manufacture in this country. Owing to

business difficulties of some sort the importation and sale of the Daimler engines was very soon discontinued, but Americans had seen enough to convince them of the really enormous possibilities of the new prime mover and lost no time in getting actively into the field.

"The early Daimlers were marine motors, and the time was ripe for the introduction of a light and compact boat engine, as the Herreshoffs had brought the small steam plant to what seemed at that time to be the practical limit of development, and the naphtha motor—a development of the condensing steam engine in which a volatile vapor is used in the retort instead of water—was in high favor and had given the public a taste of the delights of real power-boating. So dazzling was the prospect of a motor lighter, smaller and cheaper than the successful naphtha engine that a veritable wave of marine motor building swept over the country, starting first at San Francisco and being taken up soon afterward in Detroit and New York.

"Then there happened one of those things that mold destinies. American builders saw that the Daimler motor was good, but they also saw that it was decidedly expensive to build and involved a considerable outlay of time and cash before profits would begin to lighten the burden. So, with surprising unanimity, they set to work to build two-cycle motors, this type having been experimented with in France and Germany and, in a very small way, in the United States, and as the inevitable result of hurry to get on the market, in combination with a very much mistaken idea that the two-cycle engine is just as simple as it looks, the market was soon flooded with little squat, ugly motors that looked awfully good on paper and were comparatively light and compact and could be shoved away back out of the way in the stern of the boat—but which would run or refuse to run without reference to any hitherto known laws, and with utter disregard for the convenience of the unfortunate owners.

"Doubtless because of the lack of a basis for comparison, the public was quite a long time in waking up to the fact that the moody chunks of cast-iron in their boats were not all they had imagined they had a right to expect; and when the awakening came, the two-cycle principle got a black eye that is sensitive and tender, even to-day. To make the two-cycle situation worse, the few concerns that had commenced building on the four-cycle principle were turning out engines that were much better than the two-cycle motors, and odious comparisons were inevitable. Not a few two-cycle makers were converted to the four-cycle principle, and it so happened that when the automobile was about to be born most two-cycle engines had evil reputations, while most four-cycle engines had very good ones. So the automobile started with a four-cycle engine, was developed with a four-cycle engine and, except for a

few scattered instances, to-day is a distinctly four-cycle institution. And it is just as hard to buck against a strongly prevailing practice backed by a majority opinion, and deeply rooted in time and money, as it is to butt down the proverbial stone wall with one's head.

"One reason why a two-cycle engine is a hard proposition from the builder's standpoint is that, notwithstanding its apparently guileless simplicity it is a very complex problem in designing, and is prone to make unto itself laws that don't seem to have any relation to the well-behaved rules that hold good in four-cycle motor designing. Another thing: When you build a four-cycle motor there are lots of things you can do to help it if it does not work quite right. The timing of the valves, for instance, can be changed, with very marked changes in the performance of the motor. With the two-cycle, however, once it is finished that is about all there is to it, for the ports, which fulfill the functions of valves, are fixed and unalterable, and excepting ignition and carburetter adjustments there is little that can be done to help a poor motor—outside of melting it and recasting it according to a better design. On the other hand—it's a poor rule that won't work both ways—if the motor is a good one it will stay good, and ordinary wear and tear cannot affect its essential features.

"And still another thing: Millions of dollars have been invested in the manufacture of four-cycle motors, and many of those millions are doing very good work in the matter of dividends, to the satisfaction of the investors. To abandon the manufacture of the prevailing type of motor would mean starting in again at the beginning and developing along new lines. This would call for the investment of more money, the reduction of dividends for the present and a great deal of trouble and delay in getting a start. Add to this the undeniable prejudice against the two-cycle principle, which would of course have to be overcome in order to make a market, and you have an array of obstacles to the development of what I firmly believe will be the ultimate type of motor that is downright discouraging.

"Looking at the sunny side of the question, however, things are better. The two-cycle marine motor has developed into a surprisingly efficient and reliable type and within certain limits of horsepower has the field practically to itself. Some of the largest gas engines in the world are of the two-cycle type. Designers are giving more and more attention to the problems involved, and are gradually gathering data that will help very greatly, and experience is constantly getting in its good work. Two-cycle motors are pushing their way into every field and even into the air, and are giving good accounts of themselves. New designs, some involving distinct advances, are constantly appearing, and when the wheat and chaff have been separated it

will be found that there is a good deal of wheat left.

"There are not many automobile manufacturers equipping their machines with two-cycle motors, but those who are doing so appear to be doing business right along and to be well satisfied with it. Owners of two-cycle cars like them and stick to them, and the number of makers as well as the number of users is on the increase.

"In short, I believe that if the two-cycle motor had received the amount of attention, time, money and brains that have been lavished on the four-cycle, it would be a far better motor today, and would dominate the industry. And whatever skeptics may say, I believe it is only a question of time when it will occupy the advent of a genius with a successful gas turbine. The two-cycle engine is infinitely simpler than either the four-cycle poppet valve or the Knight types, and if simplicity is the great factor that the world says it is and believes it is, how can the two-cycle fail to triumph ultimately?"

Skyrocket Story of Belgian Smuggling.

Methods of smuggling by stealth and under cover of darkness, over lonely mountain roads—as used to be the fashion both in fact and in fiction—now are out of date. Speed alone now is relied upon to carry contraband goods past the obnoxious custom house, but that it does not always succeed is the burden of a tale that comes from Paris. According to the report the French custom officers on the Belgian frontier had been for some time on the lookout for a large motor car which was known to make frequent trips across the frontier, carrying large amounts of contraband. In the evening of December 1, the contraband car dashed past the Custom House at Dronk-aert at a speed of not less than 50 miles an hour, and immediately rockets were sent up to warn the neighboring customs stations, and three barricades made with carts and harrows hastily were thrown up. The car managed to get through two of the obstructions, but was thrown against the embankment of the road by the third. One of the two occupants escaped, while the other was arrested. The car was found to contain over 3,000 pounds of tobacco.

Truce Arranged in London Taxicab War.

The London taxicab strike, which was expected to tie up all traffic in the metropolis of Great Britain, after all did not prove so disastrous to the public, nor did it end in a victory for the drivers, who went out because of "extras." A temporary agreement was reached according to which the striking drivers returned to work on the understanding that they were to pay their employers five pence per day in lieu of all extra charges they might be able to collect. Until the new arrangement is given a thorough tryout by the parties concerned, no trouble is expected to occur, and the strike practically is ended.

FIAT "SIXES" FROM POUGHKEEPSIE

American Branch of Italian Factory Announces Big Monobloc Motor of Long Stroke—Its Chassis Specifications.

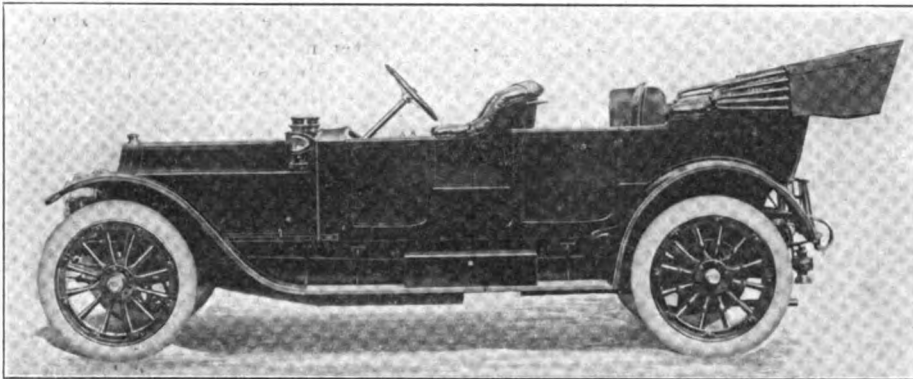
Having obtained more than a full measure of success with monobloc motors which now are produced in sizes ranging from 15 to 300 horsepower, the Fiat Automobile Co., Poughkeepsie, N. Y., which is a branch of

in the 35-horsepower model, namely 4 $\frac{1}{2}$ inches bore and six inches stroke; the motor, therefore, properly may be classed as being of the long stroke variety which construction has been consistently advocated by the manufacturers for several years past. Valves are located all on one side and are enclosed by means of light aluminum plates held in place by thumb screws. The valves themselves are 2.086 inches in diameter, the heads and seams being nickel steel to which are fused gray

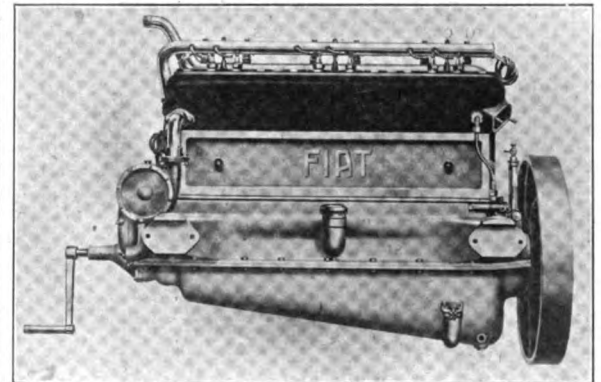
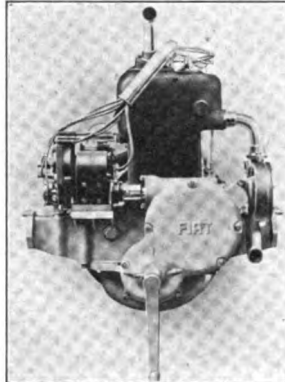
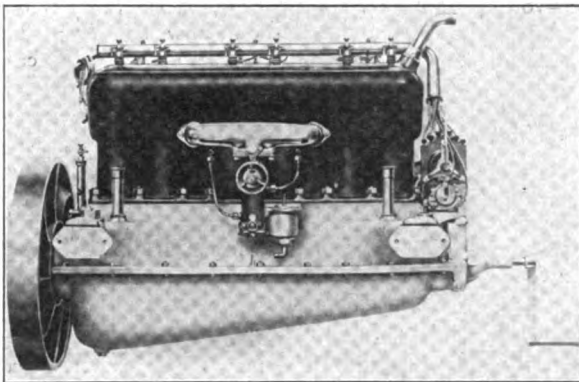
made of the same close-grained alloy iron as the cylinder casting, particular attention has been given the necessity for allowing for expansion under heat, and to this end they are made slightly tapered, the smallest diameter being at the top. The wrist pin bearings are hardened steel against hardened steel, as are all other bearings which sustain merely an oscillating movement; other bearings in which the movement is entirely rotative are of bronze.

The location of the high tension magneto and the centrifugal water pump at the extremities of a transverse shaft at the front of the cylinder casting is unusual, and adds materially to the general air of simplicity which is a feature of the whole engine. This shaft is worm driven from the back of one of the two gears which compose the timing gear train, the gears themselves being of the helical type, one bronze and the other steel. For ignition, the magneto forms part of a dual system operating through a single set of plugs with a 100-ampere-hour storage battery as auxiliary.

In working out the lubrication of the motor the benefits of both splash and force feed have been obtained, splash being re-



THE NEW FIAT "SIX" WITH TOURING BODY



SHOWING BOTH SIDES OF FIAT "SIX" MOTOR AND LOCATION OF MAGNETO AND PUMP

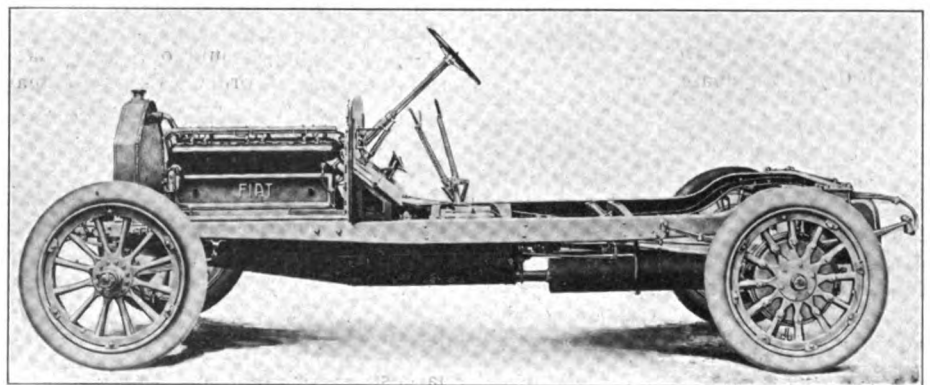
the parent company, the Fabbrica Italiana Di Automobili, of Turin, Italy, has commenced the production of a "six" which in general outline and design bears strong resemblance to its latest previous example of this system of construction, the 35-horsepower model which made its first appearance simultaneously in Italy and America last year. As a matter of fact, the "six" is practically an enlargement of the "four," the addition of two cylinders, with the corresponding necessary structural alterations being the only change in the motor which has been found advisable; and it is a splendid piece of workmanship. Fiat "sixes" are not new, of course; they have been produced for several years at the Turin factory though they have not been extensively advertised either here or abroad. This is the first time, however, that the American factory has turned its attention to the production of a six-cylinder car.

The new car is rated at 50 horsepower, the cylinders measuring the same as those

iron seats to reduce pitting and facilitate regrinding.

By coring exhaust and intake passages in the cylinder casting, an extremely smooth exterior has been obtained in addition to which carburation is assisted and hot exposed pipes are eliminated, as are a number of nuts, bolts, studs and gaskets. In the construction of the pistons, which are

lied upon for the lubrication of the cylinders. The main bearings, however, as well as those in the wrist pins, and the timing gears are lubricated by forced feed, the oil being pumped through a hollow crankshaft. Suitably placed ducts conduct the oil up to the wrist pin bearings and to the timing gears in the front of the crankcase. The oil reservoir is of four gallons capacity and



SIX-CYLINDER FIAT CHASSIS IN ELEVATION

extends the length of the crankcase. An oil gauge on the dash serves to indicate that the system is in operation.

As has been the case in so many instances, simplification in its widest sense means the elimination of as many parts as possible. The fan, therefore has been done away with and the spokes of the flywheel made in such a way that any other means of inducing a draft through the radiator is unnecessary. The same type of Fiat radiator trunnions as are used on the four-cylinder car and which are designed to obviate the possibility of damage resulting to the radiator through vibration, are used in supporting the radiator on the "six." The radiator itself is of the standard honey-comb pattern.

As regards the construction of the chassis and component parts of the transmission, but one noteworthy change in accepted design as exemplified in the four-cylinder model has been made and this concerns the location of the service brakes. In the smaller car, a single contracting band and drum on the propeller shaft serves this purpose, but in the "six" twin brakes, one on each rear wheel, are used. They are of the external contracting type, and the emergency brakes which are internal expanding also are on the rear wheels.

The clutch and change gear mechanism are the same, the former being of the multiple disk type with 51 steel disks operating in an oil bath and completely housed. Four speeds forward and reverse, selectively obtained, are provided in the change gear mechanism, the fourth speed being direct drive. That not even little things have been overlooked in the attempt to make a good car even better is evidenced by the fact that the gear box is provided with a vent.

The same distinctive Fiat arched rear construction, the employment of which permits the elimination of strut rods, is used, the housing being of pressed steel heavily ribbed and in two pieces bolted together. The drive axles are of the semi-floating type. The spring suspension embraces the use of semi-elliptic members in front and three-quarter elliptic members in the rear, all springs being hung on Fiat patented spring hangers which are integral with the chassis frame. The wheelbase of the "six" is 135 inches as against 123 inches in the four-cylinder model. The tires are 36 x 4 inches in the front, and 37 x 5 in the rear, demountable rims with two extra rims being standard equipment.

In all, the six-cylinder model is produced in six body styles, including two and four-passenger roadster, five-passenger phaeton, seven-passenger touring car, limousine and landaulet. The price of the car with either of the open bodies and including such items of equipment as top with curtains, front and envelope, foot and robe rails, trunk rack, demountable rims, horn, tire brackets, combination oil and electric tail and side lamps, six-volt storage battery, Prest-O-Lite tank, tools, pump and jack, is \$5,500.

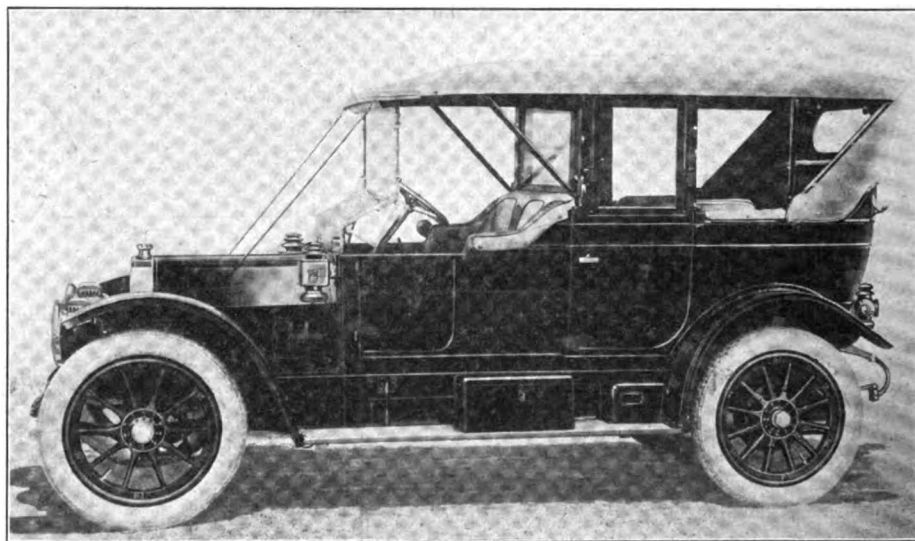
THE "REAL THING" IN TOURING CARS

Premier Company Believes It Has Evolved

It—Born of Cross-Continent Experience—Its Features.

While the ordinary type of touring car, equipped with top, side curtains, wind-shield and other protecting devices, is an exceedingly comfortable conveyance under average touring conditions and in pleasant weather, when the tourist goes very far afield he too often has found something lacking and has sighed for the luxury and the absolute protection from the elements provided by the limousine type of body.

which the glass windows, the upper sections of the doors, the partition back of the driver's seat and the vertical members serving as supports for the sash and filling pieces to make the enclosure complete and tight, are made to drop into pockets, where they are securely held and prevented from rattling. With the glass work snugly stowed, the top may be folded back just as the familiar touring car top is folded, leaving the car perfectly open. While the car is said to possess all the comfort of a limousine, the increase of weight is claimed to be only about 200 pounds over the touring type. The "Touring de Luxe" style of body is regularly supplied on both the four-cylinder 40-horsepower and the six-cylinder 60-horsepower chassis, the body itself be-



PREMIER "4-40" WITH TOURING DE LUXE BODY

It has been recognized, however, that the weight of the conventional limousine precludes its use for anything like real touring, even if the motorist were willing to put up with the discomfort of an enclosed body with only the windows open in hot weather—which he is not.

The logical inference is that a car combining the light weight and openness of the touring machine with the security and weatherliness of the limousine would be almost ideal for long journeys. In fact, a number of cars have been built embodying these features in greater or less degrees, but all were specially designed, and it remained for the Premier Motor Co., of Indianapolis, Ind., to bring out the first car of this type listed as a regular stock model. It is styled the "Touring de Luxe Premier," and its design is an outcome of experience gained in the recent transcontinental tour of 40 motorists in 12 Premier cars. Naturally the tourists while on the road hatched out many ideas concerning the perfect touring car, and their conclusions, put into practical form by the Premier designers, are embodied in the new model.

The most interesting constructional feature of the car is the ingenious system by

ing identical as mounted on either. There is a slight difference in the length of the hood, however, to conform to the different engine lengths.

Krupps Discover a New Bearing Metal.

In the course of scientific investigations it often happens that a search for one particular thing will develop others perhaps more valuable than the actual object of the search. An instance of the sort recently occurred in the great Krupp steel works in Germany, where the metallurgists, making laboratory experiments with a view to producing a special steel for automobile parts, accidentally produced an alloy of unprecedented hardness. According to the report, a thin plate of this metal resisted the fervor of the oxy-acetylene flame for several hours—for so long, in fact, that the idea at once occurred to the metallurgists that a safe made of the new alloy would resist the attentions of burglars long enough to discourage them or permit the guardians of the peace to take a hand in the game. It is said that the Krupp works will use the newly found steel in the manufacture of ball bearings and other parts requiring great hardness.

Ventilating the Front Half; the Methods in Vogue

He was the average type of self-reliant motorist who prefers to do his own driving, and his car, a low, rakish appearing machine with a sloping windshield and a deep skuttle dash, stood outside the doors of an automobile salesroom having a pretentious glass frontage. His business was to purchase a new car—a later model of the same make as his own—and after he had asked several questions regarding the changes which had been made in the new model, he casually remarked:

"I see you don't equip your cars with ventilators."

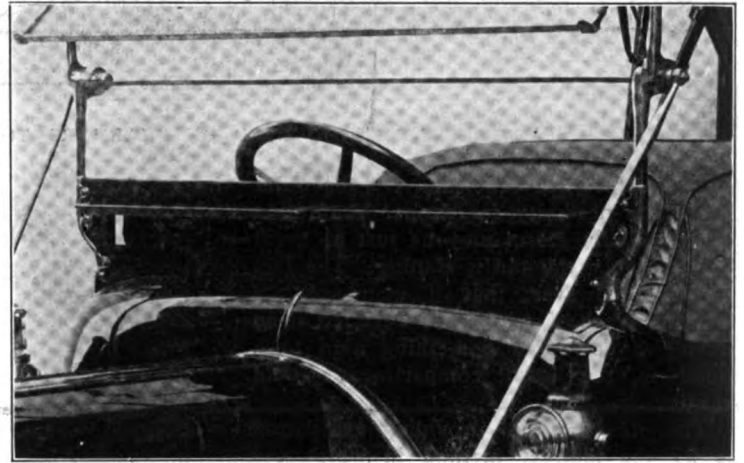
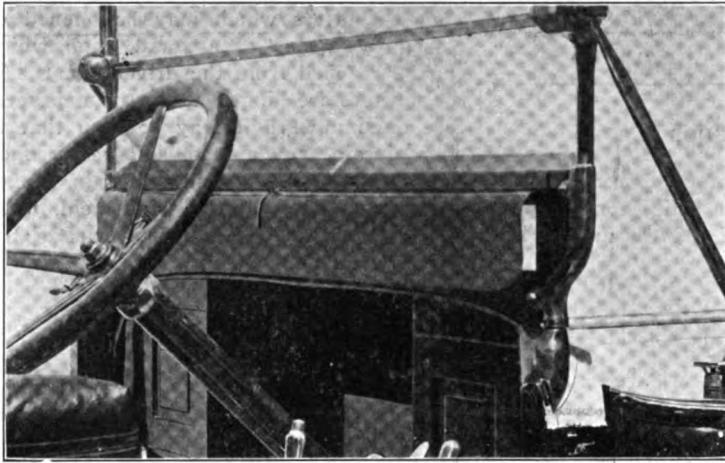
"We haven't found them necessary," replied the salesman, "at least on our open body cars. Our limousines, of course, and the landaulets, too, have ventilators, but

happening. It is part of an actual conversation which occurred, as the story books say, "not more than one hundred years ago," nor more than 45 seconds from Broadway, New York City. In substance, it is exactly the same thing that hundreds of other motorists have said, and as a result there will be very few closed front cars put on the market in future that are "ventilatorless."

When the first closed front cars were produced, their designers made one grave mistake; they forgot all about the motor. They forgot that it is essentially a heat engine and that as such it must necessarily radiate a certain amount of heat. In their laudable attempts to increase the comfort of passengers in the front com-

respect, the virtue of ventilators is real virtue, inasmuch as they serve as the key to comfortable riding in a closed front car, particularly if it is equipped with a windshield and has a skuttle dash. That they really are a necessity and not merely a useless "fixing" is evidenced by the fact that not only are they demanded but the majority of manufacturers are voluntarily using them in the realization that the closed front car has become the standard; the open body car is passing so quickly that within a year or two it probably will become as much of a curiosity as a rear-entrance tonneau.

Naturally, it is only recently that attention has been drawn to the necessity for providing some scheme for ventilation, for



DIRECT METHOD OF VENTILATION AS EXEMPLIFIED IN PIERCE-ARROW CONSTRUCTION

you will find that plenty of air gets down over the dash to ventilate thoroughly the front compartment."

"That sounds very well," retorted the motorist, with just a suggestion of a gleam in his eye, "but it is theory—pure theory. Now see here, I have driven my car thousands of miles—and it is just the same as this one on the floor—and you can't tell me that ventilators are not necessary. In theory, I suppose they are not required, for, as you say, the air is supposed to curl around the dash and project itself downward into the compartment; but in practice it does nothing of the sort. There is only one way I can make my car bearable in warm weather. That way is to prop one of the front doors open and let in a current of air, but I don't like to do that because of appearances, and unless you can equip your car with ventilators I don't think I want it."

Needless to say he got the ventilators, and though the foregoing conversation may appear mythical it represents an actual

happening. It is part of an actual conversation which occurred, as the story books say, "not more than one hundred years ago," nor more than 45 seconds from Broadway, New York City. In substance, it is exactly the same thing that hundreds of other motorists have said, and as a result there will be very few closed front cars put on the market in future that are "ventilatorless."

When the first closed front cars were produced, their designers made one grave mistake; they forgot all about the motor. They forgot that it is essentially a heat engine and that as such it must necessarily radiate a certain amount of heat. In their laudable attempts to increase the comfort of passengers in the front compartment by shielding them from the rigors of the weather they actually made conditions worse in a great many cases. And this for the simple reason that they neglected to provide means of ventilation. Closed front cars in winter are one thing and closed front cars in summer are quite another, as any one who has ridden in the front seat of one can testify. In winter, protection and warmth are necessary but in hot weather, when by far the greatest amount of motoring is done, protection of a kind is necessary, but added warmth is distinctly undesirable. In fact, to ride in the driver's compartment on even a tolerably warm day may become more than uncomfortable before very many miles of road have been covered.

The answer to the problem is ventilators—not make-shifts but properly constructed ventilators—and manufacturers have not been slow to appreciate it. Time was when all such devices were heralded and welcomed merely as "talking points," and while they still possess virtues in this

it is only within the past twelve-month that the closed front car has attained popularity.

As in the case of everything else, whether or not it be connected with the building of automobiles, there is a right way and a wrong way of accomplishing an end, and though the problem of supplying efficient ventilators appears almost ridiculously simple, in reality there is a great deal more to it than greets the eye of the casual observer. Obviously, the simplest way to provide a circulation of air through the front compartment is to punch a couple of holes through the dash and let it go at that. But the trouble with this method is that the current of air becomes a draft and a draft directed on one spot continuously is not always comfortable. The real answer is to provide some means of insuring ventilation without drafts, and there are several ways of doing this, as evidenced by the arrangements used on the products of any number of the more prominent manufacturers.

In the first place there are two ways in

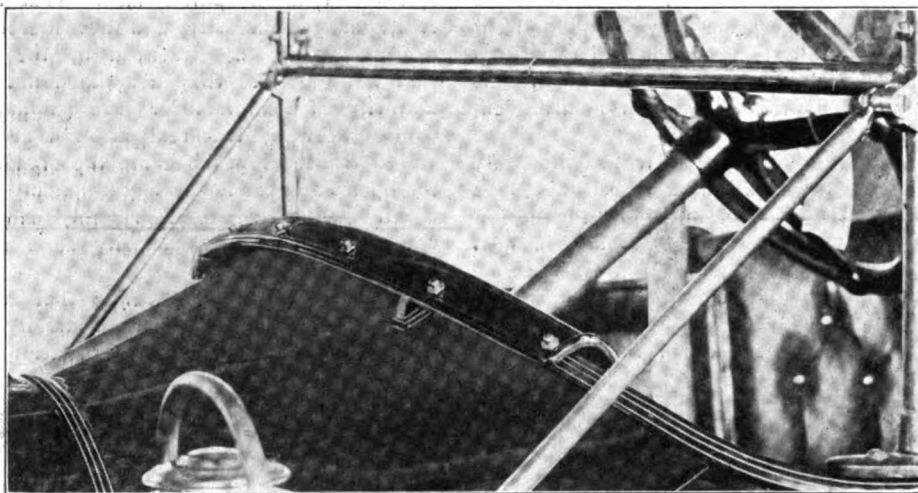
which ventilation may be effected. The first of these is by causing a direct inrush of fresh air merely by providing openings in the dash; it is understood, of course, that the openings must be arranged so that they may be closed at will, for there are times even during summer when it becomes necessary to close them. This is particularly true in the case of a rain storm, for instance, and in passing it may be said that in this respect a great number

The second consideration—and one which is of greater importance than generally is supposed—is their location. Manifestly, it is fresh air that is wanted and therefore the ventilators must be so positioned that fresh air will be admitted. Probably the mere assertion that the positioning of ventilators constitutes a problem will appear superfluous, but a glance at the ventilators on some of even the higher priced cars will reveal the fact that they might have been

should not be lost sight of. Of course, when the engine hood is not provided with vents, the location of the ventilators is of little moment provided only that they are so positioned that a steady stream of air comes in contact with them when the car is in motion.

Lately, several manufacturers have turned their attention toward providing ventilation from above the engine bonnet where there is nothing to obstruct the passage of the air and there is a continual draft. In such arrangements, the ventilators almost invariably are placed in which is styled the "filler-board" of the windshield, or the strip which is used to connect the windshield and the dash board. The ventilators used on Pierce-Arrow cars, two views of which are shown herewith, are so placed and are interesting inasmuch as they provide proper ventilation with none of the drawbacks which have been mentioned.

As may be seen in the front view of the car, the ventilators are two long, narrow slits which extend nearly the length of the windshield. Covering them there are two hinged shutters which may be opened or closed by means of a small knob which can be reached from the driver's seat. As the shutters are hinged at the top and therefore open upward it may be seen that in case of rain they may be left partly open to insure ventilation and still rain cannot enter. It is behind the windshield, however, that the really ingenious part of the



VENTILATING METHOD USED ON CHALMERS TORPEDOS

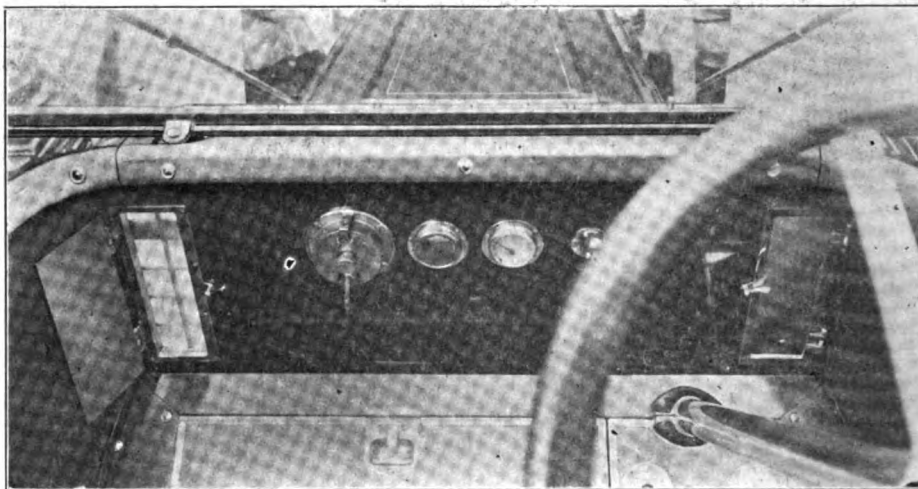
of ventilators are deficient. On the other hand, the necessity for proper ventilation during a rain storm may be just as great as it is when the sun is shining. The fact remains, however, that if many of the existing types of ventilators were left open during a downpour something akin to a flood in the front compartment would result.

The other way of providing ventilation is by the indirect method in which the rush of air past suitably placed openings causes a partial vacuum in the region of the ventilators, the result being that the heated air is exhausted from the compartment and cool air enters from the top to replace that which has been drawn out by suction. This method is not used as extensively as the direct method though it possesses many distinct advantages and if properly designed may be equally as efficient as the other.

To be efficient, one of the first considerations is that the ventilators shall be of sufficient size. Of course, half a loaf is better than no bread, and even if they are small they will be better than nothing. The actual manufacturing cost and the cost of installation of adequate ventilators need not be much greater, if indeed it is any greater, than is the cost of inadequate ones, and manufacturers have not been slow to appreciate this fact, either. Hence, it is only fair to say that the majority of ventilators fitted to late model cars are large enough. As a matter of fact some of them really are too large though the fault more often is on the other side.

placed to better advantage had the question been thought out a little more deeply.

The engine hoods of a great many cars



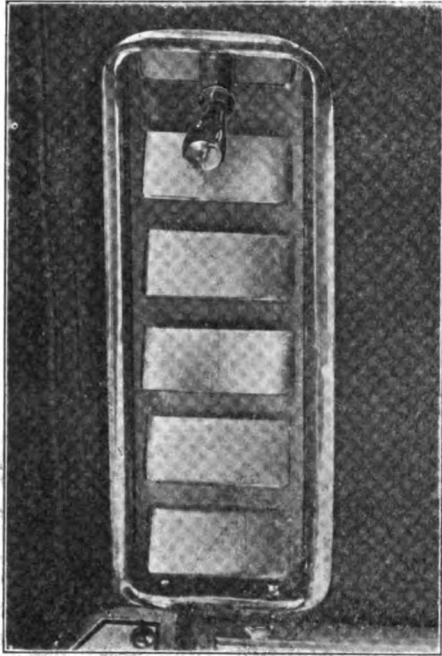
FRANKLIN ARRANGEMENT OF DASH VENTILATOR

are provided with longitudinal slits so that the air which is drawn in by the fan may, after having passed over the engine, issue out into the air. It stands to reason that this air must have become slightly heated in its passage in addition to which it has absorbed some of the odor of burnt oil and gasoline. Therefore, if the ventilators are placed low in the front of the dash and to the sides of the engine hood it is apparent that not all the air which passes through them into the driver's compartment will be fresh and cool. This is one of the principal considerations and

ventilators is revealed. To prevent a direct blast of air against the passengers, a leather deflector is used and this causes the air to travel downward parallel with the dash to the floor.

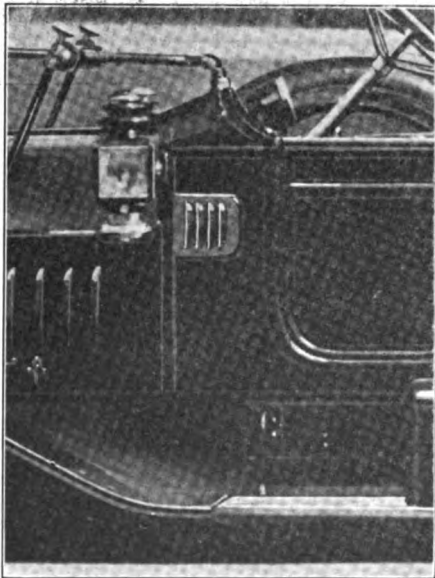
A somewhat similar system is used on the torpedo models of Chalmers cars as shown in the accompanying illustration. The ventilator in this case is a U-shaped aluminum casting which is fastened over the edge of the cowl by means of set screws inserted from below. The forward movement of the car forces air in at the front of the ventilator, the shape of which is

such that the air is deflected against the dash board, and thence downward to the floor eliminating objectionable drafts. In order to show the device more clearly, the lower section of the windshield has been removed. This consists of a mohair strip



ANOTHER CHALMERS VENTILATOR

which takes the place of the usual "filler-board" and is attached to the center cross-bar of the windshield and to the cowl. When weather conditions require it the



PREMIER WIND SCOOPS

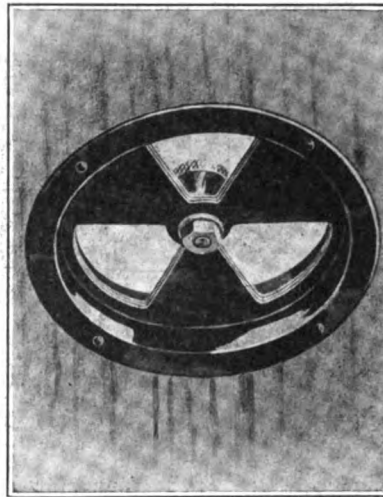
aluminum casting may be removed in a few minutes and the mohair strip attached directly to the cowl.

Among the first manufacturers to realize the necessity for ventilators and to supply them on their products was the H. H. Franklin Mfg. Co., and the arrangement which it has used consistently from the first is shown herewith. The ventila-

tors are simply two openings at either side of the dash provided with screens and doors. To hold the doors closed, small latches which operate as wedges and prevent rattling are used; the doors are held open by springs.

As the Franklin engine hood is devoid of vents, the location of the front compartment ventilators is such that the admission of fresh air is assured.

Winton cars also are equipped with similarly located ventilators in which are combined receptacles for the electric side lights. These ventilators also are equipped with screens to exclude as much dust and dirt as possible, though they differ from the others in that they may be opened to any desired width by simply revolving a small shutter. Thus the maximum or the minimum, or any other desired degree of ventilation may be obtained quite easily. The arrangement used on Rambler cars is



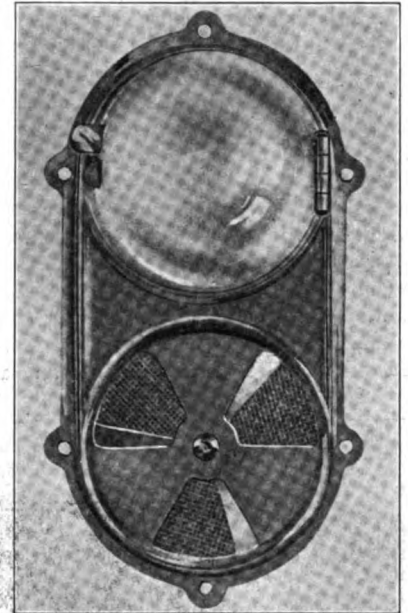
RAMBLER DASH VENTILATOR

quite similar and these ventilators also are let into the sides of the dash. They are circular in shape with three semi-triangular openings which may be opened or closed by merely turning a small thumb nut.

Small wind scoops serve to ventilate the front compartments of Premier cars and their location on the skuttle dash proper is such that only fresh, cool air is admitted. These, also, are arranged with a sliding shutter, by means of which the amount of air admitted may be regulated over a wide range. The ventilators which are used in the Chalmers bodies that are of other than the torpedo variety also are located in the dash, one of them viewed from the inside being illustrated herewith. As may be seen, each opening is equipped with a small cowl, the effect of which is to deflect the current of air forced in toward the floor. Adjustment of the size of the openings is provided in a sliding shutter.

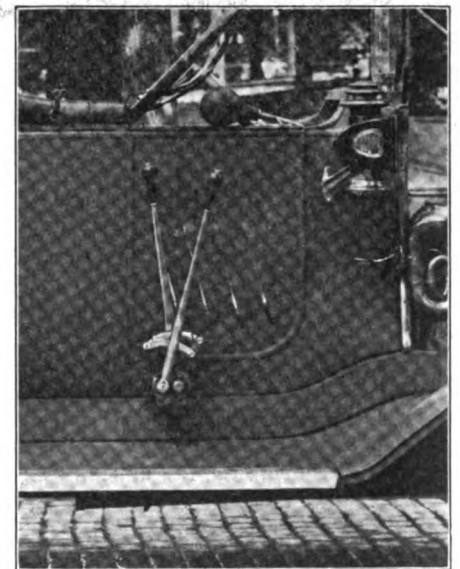
In the Oldsmobile ventilators is exemplified the indirect system of ventilation. Which is to say that the ventilators are so arranged that a direct current of air is not forced into the compartment. By

inverting the cowls of the ventilators so that the openings face backward instead of forward an entirely different effect is obtained. In rushing past the cowls the air literally sucks the heated air out of the compartment, the result being that



WINTON VENTILATOR AND LIGHT

fresh air then enters from the top to replace that which has been exhausted. Therefore, there can be no direct draft, add to which it is impossible for rain to enter for the simple reason that the cowls



OLDSMOBILE REVERSED OPENINGS

are turned the wrong way to permit of such an occurrence. The width of the slits in the ventilators is adjustable by means of a shifting shutter actuated by means of an unobtrusive knob.

The simplest way of providing for ventilation and the cheapest from the manufacturing point of view is simply to equip the front doors with long hooks by means

of which the doors may be latched "ajar." Several manufacturers are employing this method at present and though it is open to several objections it still has given satisfaction. The first objection to it, which is more or less hypothetical, is that when the doors are left partly open the appearance of the car suffers; it all depends on the manner in which the latching is done. Cars have been turned out with provision for latching doors open a few inches and their appearance is none the less pleasing. Others, however, have been made unsightly, to say the least, by a similar arrangement.

The other objection is much more real and is due to the fact that much or little ventilation must be endured; there is no provision for adjustment, in other words. Incidentally, if it is desired to leave the doors open for ventilation during rain the objection becomes more real than ap-

HUDSON ADDS TWO CLOSED CARS

Limousine and Coupe Mounted on Regular "30" Chassis—Comfort for Passengers and Chauffeur Considerations.

Elaborating on the practice of not a few manufacturers in giving their customers considerable latitude for choice as regards body styles, the Hudson Motor Car Co., of Detroit, Mich., has increased the size of its line, announced some six months ago as consisting of four models, by the addition of two new models, one of them a full-sized limousine and the other an inside driven coupe. Both of the new bodies are regularly supplied on the "33" chassis which serves to carry the other four body styles.

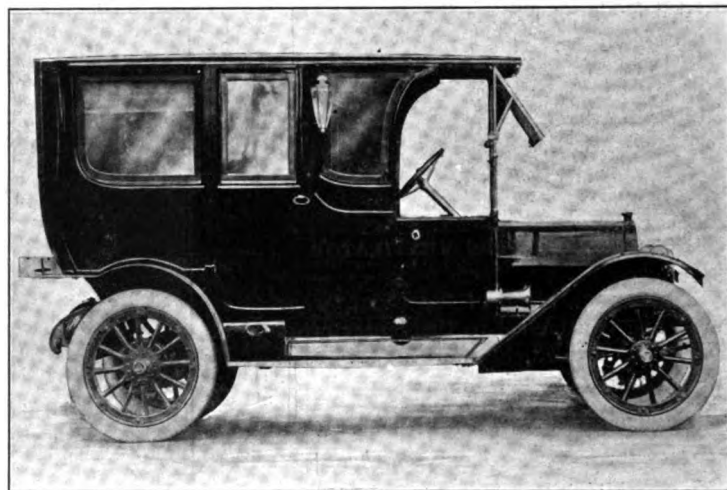
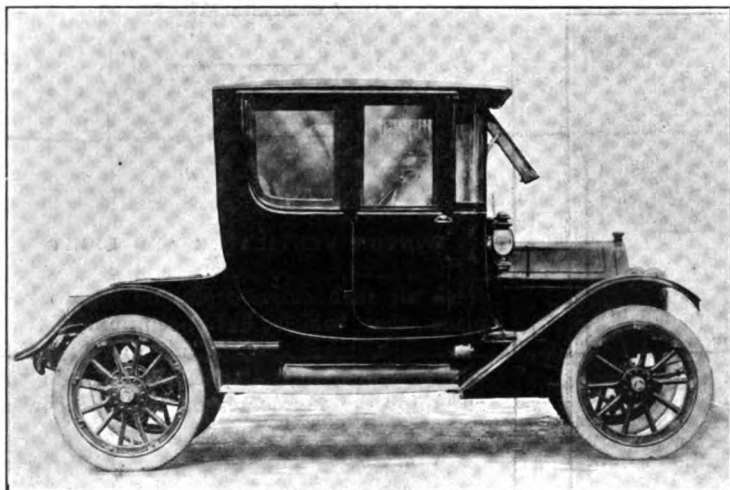
In the introduction of these two en-

when the weather makes greater ventilation advisable and for bad weather the front glass is arranged to swivel outward in the same manner as that in the limousine. Liberal space for the storage of tools and spare parts is provided behind the body.

Both cars are equipped with engine starting devices and the equipment in each case embraces demountable rims, the usual allotment of body fittings such as robe and foot rails, toilet cases, flower vases, etc., combination electric and oil side and tail lamps, Prest-O-Lite tank, tools, pump and jack. The price of the limousine is \$2,750, and the coupe lists at \$2,250.

"Blitzen" Starter Appears on the Market.

To the lengthening list of engine starting devices which recently have been placed on the market has been added another which is styled by its producers, the Henry Mfg. Co., of 111 West Fifty-fifth street, New York



THE NEW HUDSON INSIDE DRIVE COUPE AND THE LIMOUSINE

parent. Of course when the doors are arranged to open toward the back of the car the foregoing objection cannot be entertained. With such an arrangement the system then partakes of the features of the indirect method and beyond doubt is delightfully simple.

To Oil Cylinders Through Fuel Tank.

If a motor which has been overhauled and fitted with new pistons is found to be getting insufficient cylinder lubrication owing to the pistons being too close a fit to carry up the requisite oil, the difficulty may be overcome by putting oil into the gasoline tank in the proportion of one pint of oil to each five gallons of gasoline. The oil is carried into the cylinders and deposited on the walls, providing an auxiliary supply which can be regulated by varying the proportion of oil to gasoline. This method should not be used as the sole means of lubricating the cylinders, however, but only as an auxiliary where the regular system proves inadequate. The bearings of a four-cycle motor will not be lubricated from oil mixed with the gasoline.

closed bodies, conservative design has been adhered to and nothing radical has been attempted. Though nothing which could be expected to increase the comfort of passengers has been omitted from either, the manufacturers have preferred to stick to accepted practice in the utilization of only that which has come to be considered as standard construction.

In the limousine, the comfort of passengers scarcely has received more careful attention than has provision for the comfort of the chauffeur. Full height front doors are provided and the driver is still further protected by the addition of liberal width glass sides to his compartment. Inside the car, particular attention has been given the upholstery with a view to obtaining at once beauty of appearance and easy riding qualities. To this end, the cushions are properly shaped to allow of the easiest position and are of unusual depth and luxuriousness.

The coupe, of course, is intended primarily for the accommodation of two passengers and is hardly less complete in the luxuriousness of its appointments than the limousine. The windows all may be opened

City, the "Blitzen" self-starter. It is of the acetylene variety, which is to say that the operation of the starter depends on the explosion of acetylene gas in the engine cylinders.

Though it is similar to other devices of the same general nature in that the gas is admitted to the cylinders under pressure from a Prest-O-Lite tank, or one similar to it, the method of admitting the gas and the arrangement by means of which it is admitted are different. From the gas tank a pipe is led to a valve on the dash, and from there to the intake manifold instead of directly to the cylinders. Normally, the handle which actuates the acetylene valve is horizontal in which position it is held by a spring; when the motor is to be stopped, the handle is turned down, this action short-circuiting the magneto and at the same time liberating the acetylene which is drawn into the cylinders during the last few revolutions before the motor stops. The motor, therefore, is automatically made self-starting merely by being stopped. The whole device is remarkably simple and its total weight is approximately one pound. It may be attached to any motor.

LIPPARD-STEWART ABANDONS WORM

**Buffalo Truck Maker Reverts to Bevel Gear
—Combination Rear Springs Adopted—
Simplicity of Motor and Chassis.**

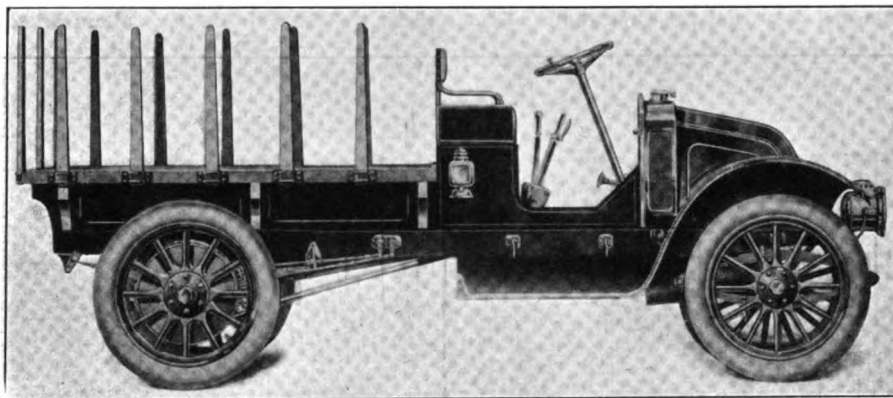
To the producers of the Lippard-Stewart delivery cars belongs the distinction of having embodied in its product a greater number of those features which in the eyes of the average user are ideal, than is usual. The Lippard-Stewart Motor Car Co., Buffalo, N. Y., manufactures and markets the car, which made its initial appearance some

sary, of course. Similarly, batteries, coil and timer are dispensed with, ignition being effected by means of a high tension Bosch magneto with set spark. In addition to simplifying the ignition apparatus this also makes the control mechanism less complicated, as there is but a single lever—the throttle lever—on the steering column.

The same degree of simplicity is apparent in the motor itself and though it is of exceptionally compact design its construction is none the less rugged as is testified by the use of a crankshaft $1\frac{1}{8}$ inches in diameter, mounted on unusually large ball bearings. In general design, the motor is of the conventional four-cylinder, four-cycle type with

able and unnecessarily expensive. Lubrication is effected by means of a centrifugal, worm-driven pump which maintains a constant level in the several compartments under the connecting rod big ends. A sub-base in the crankcase forms the oil reservoir from which the lubricant is drawn and into which it drains through a strainer after having performed its function. The sub-base can be removed quickly and easily for inspection and cleaning.

As a further indication of the policy of simplicity which has been adopted, intake and exhaust passages are cored in the cylinder casting, heat radiation from the latter being assisted by longitudinally cast fins. A Kingston floating-ball carburetter is used and is placed at the end of a very



THE LIPPARD-STEWART 1,500-POUND TRUCK

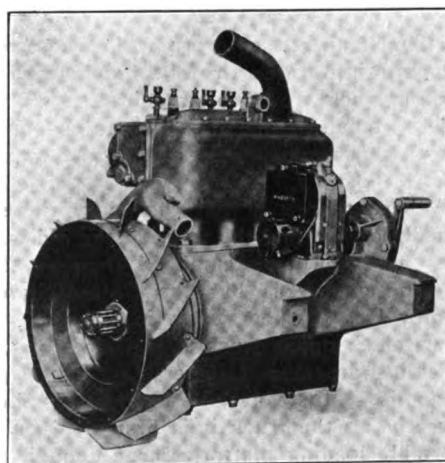
nine months ago, at which time it was illustrated and described in the Motor World. Since then, however, it has undergone two important changes in design, the most significant of which is the adoption of a standard type of bevel gear drive in place of the worm-driven rear axle with which it was equipped at first. The other is the substitution of a combination of semi-elliptic and coil springs for the full-elliptic rear springs which at first were used; otherwise the car remains unchanged.

As may be seen by the accompanying illustrations, the car is quite different in appearance from the usual type of light delivery wagon and its lines suggest not a bit the vehicle which is "made over" from pleasure car designs. Simplicity and accessibility have been most in view in producing the chassis, which is made in only one size and is rated at 1,500 pounds capacity, and to this end, each part—motor, steering gear, change gear mechanism, clutch, radiator and axles—is made a separate unit which may be removed intact without the necessity for disturbing other parts or their adjustments.

Further increasing simplicity, quite a number of parts which in the eyes of the designer are superfluous in this type of vehicle have been eliminated. Thus, for instance, the fan is done away with, cooling being effected by the thermo-siphon system with the radiator located behind the engine in a protected position and a draft through it insured by the flywheel which carries radial blades. No pump is neces-

sary, of course. Similarly, batteries, coil and timer are dispensed with, ignition being effected by means of a high tension Bosch magneto with set spark. In addition to simplifying the ignition apparatus this also makes the control mechanism less complicated, as there is but a single lever—the throttle lever—on the steering column.

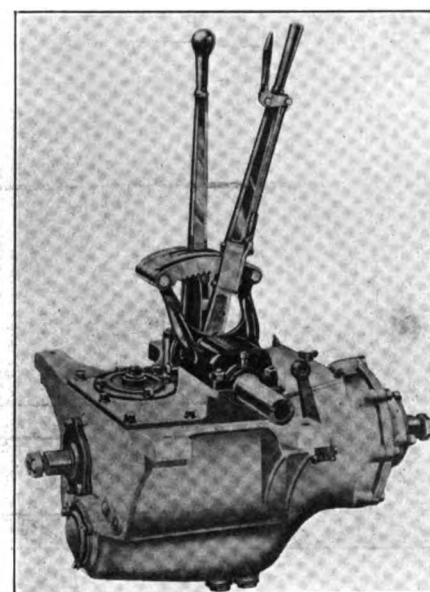
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LIPPARD-STEWART MOTOR

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The motor is mounted directly on the chassis frame by means of exceptionally heavy and strong lugs cast integral with the crankcase, subframe methods of mounting the motor having been deemed inadvis-



LIPPARD-STEWART GEAR SET

short, jacketed induction pipe in which there are but two flange joints, one at the carburetter and the other at the cylinder casting.

The change gear and clutch cases are cast integral of aluminum and thus form a rigid unit. Any of the gears, or the clutch, may be removed separately, however, without disturbing other elements. The change gear mechanism is selectively operated and provides three speeds forward and reverse. The clutch is of the multiple disk variety in which 25 plates are used, the alternate disks being faced with Raybestos. The clutch shafts are carried in ball bearings. One of the little things that make for efficient action of the whole is that the supports for the change gear lever are cast integral with the cover of the gear box, thus making complicated linkage or other means of connection unnecessary.

The rear axle is of Timken construction and of the full-floating type with a gear ratio of five to one at the differential. Both sets of brakes are carried on the rear wheels, the service brakes being external contracting and the emergency brakes in-

ternal expanding; brake drums are 17 inches in diameter and three inches in width. The front axle is drop-forged and of the conventional I-beam section with steering knuckles hung on Timken roller bearings and adjustable stops to govern the turning radius.

By way of providing equally easy riding qualities whether the vehicle is loaded or empty, full-elliptic springs are used in front, and those in the rear are a combination of semi-elliptic and coil, the effect being that when the vehicle is empty only the semi-elliptic springs support the weight in the rear. When the vehicle is loaded the coil springs also come into use. The wheelbase of the car is 115 inches and the weight of the chassis on the tires, which

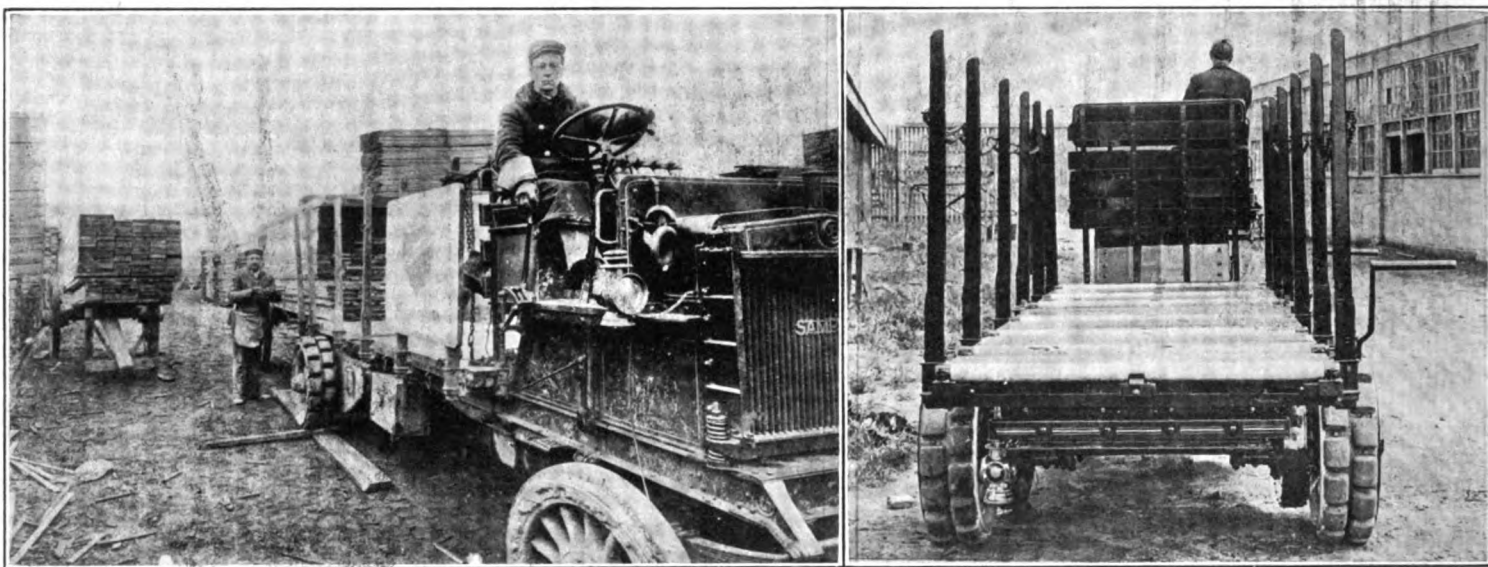
FACILITATING THE LUMBER BUSINESS

Rollers and Portable Loading Platform Employed to Increase Truck's Efficiency— How the System Works.

Custom and habit, to say nothing of prejudice, are responsible for the fact that things are often done in ways that really ought to be obsolete. For example, the volume of lumber hauled by motor trucks is exceedingly small as compared to what it ought to be, to say nothing of comparison with the quantity transported on horse-drawn trucks. Hitherto a potent reason for this has been that the time required for

the motor truck backs up to it until the roller on the rear end of the body passes under the projecting load of lumber and partly lifts it, the heights and slopes of the platform and truck body being arranged for this purpose. Then a workman gets busy with the hand crank, turning the roller, whose corrugations grip the lumber and cause the entire load to roll smoothly into place, other rollers taking the weight as the load moves along. Ratchets on the rollers prevent slipping or backward movement of the load.

The motor truck proceeds on its way and the platform is again available for a fresh burden which is placed while the motor is on the road. At the unloading place the ratchets on the rollers are disen-



SAMPSON TRUCK FOR LUMBER CARRYING, SHOWING "CARTRIDGE" SYSTEM OF LOADING AND ROLLER BED

are 34 x 4 pneumatics all around, is 2,200 pounds. In locating the steering wheel at the left and the control levers in the center of the floorboard it has been the aim of the designers to increase the efficiency of the vehicle by facilitating the work of the driver who thus is able to save time by entering or leaving his seat from either side. Though but a single chassis is produced it is regularly mounted with any of a number of body styles to suit the requirements of the purchaser's service. The price of the car with an enclosed panel body is \$1,675; with express body and top, open box body or platform stake body, it is \$1,650 and with police patrol, ambulance or hotel bus body it is \$2,200.

Kerosene Not a Safe Anti-Freezer.

Kerosene oil mixed with the cooling water of a motor is sometimes recommended as an anti-freezing mixture. Even if it were possible to mix oil and water intimately, the combination would still possess serious drawbacks, for its boiling point would be high, causing the motor to become abnormally hot, and scale would be deposited on the interior walls of the radiator and of the cylinder jackets.

loading lumber is so protracted, sometimes running into three or four hours, that a motor truck would be required to stand idle so much of the time that no economy worth mentioning could be effected by its use.

Where there's a will, however, there's usually a way, and the truth of the old saw was never better exemplified than by the system employed by the United States Motor Co., of New York, in adapting its four-ton Sampson truck to the needs of the Shevlin-Carpenter Lumber Co., of Minneapolis. Instead of loading lumber directly on the truck it is first piled on a portable loading platform large enough to carry a full truck-load. One end of the platform is carried on two wheels and the other rests on a wooden horse. In piling on the boards they are allowed to project over the forward edge of the platform—that is, at the end supported by the wooden horse.

The platform of the motor truck is fitted with corrugated rollers, as shown by the accompanying illustration, one of the rollers being at the extreme rear end and arranged to be rotated by means of a hand crank. When the platform is loaded

gaged and the hand crank on the rear roller again brought into requisition, this time to work the load off the truck, the entire load, roped or chained into a huge bundle, dropping in an orderly pile on the designated spot. On returning to the yard a loading platform is again ready, and the truck is thus kept on the road and unprofitable delays at the loading and unloading points are avoided.

Speedwell Sounds Call to Truck Agents.

Believing that the free exchange of ideas is a great help to salesmen, the Speedwell Motor Car Co., of Dayton, Ohio, has arranged for a convention of all its truck agents to be held at Dayton on December 11, the company paying all expenses of those who attend. One of the tenets of the Speedwell company is that motor trucks should be sold only to concerns that are in a position to use them with profit, and that prospective purchasers should be thoroughly posted as to all expenses connected with motor haulage, with a view to avoiding, as far as possible, dissatisfaction arising from lack of advance information. The convention is expected more deeply to instill this idea among others.

TO PROTECT MOTOR FROM CHILLS

Illinois Company Offers Thermo-Valve for This Purpose—How It Regulates the Various Cooling Systems.

For years motorists have listened to discussions, heard lectures and read papers on the subject of motor cooling problems, and it has been so strongly impressed upon them that the gasoline motor is a thing requiring the application of a mild refrigerating process, that it comes as a distinct shock to be told that what is really needed, at least a good part of the time, is something

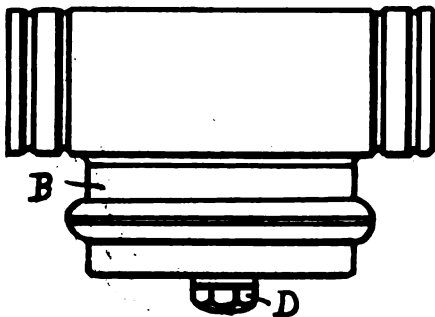


FIG. 1

to keep the motor from catching cold. And with the avowed object of keeping the motor warm the Thermo-Valve Works, of Berwyn, Ill., offers to motorists a device which, placed in the water circulating system, automatically checks the flow of water when the motor is running too cool and permits free circulation when the full effect of the cooling system is required.

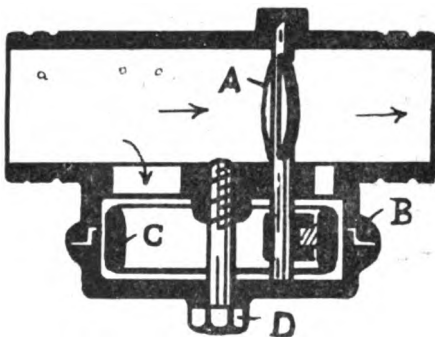


FIG. 2

The operative principle involved in the "Thermo-Valve," as the device is called, is that of the thermostat acting upon a valve, the whole enclosed in a casing and arranged for connection with rubber hose. Two models are made, one for thermo-siphon or gravity circulating systems and the other for forced circulation, as when a pump is used. The thermo-siphon type is the simplest, and is shown in Fig. 1, while Fig. 2 illustrates the mechanism and Fig. 3 indicates the method of attachment. In Fig. 2 the valve in the water passage is shown at A and the thermostat at C. A

passage permits water to flow into the thermostat casing, as shown by the curved arrow in Fig. 2. When the bolt D is withdrawn the Casing B, Figs. 1 and 2, can be removed for inspection and cleaning. The action of the thermostat is such that when heated it tends to open the valve and when

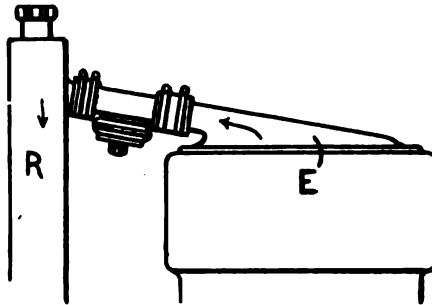


FIG. 3

cooled to close it. When the water is cold, as it will be when the motor has been idle for a long time, the valve will be closed and the water in the cylinder jackets remains there until the motor attains its proper working temperature, which would require a considerable time, in cold weather, with icy water circulating rapidly. When the water reaches a temperature of about 170 degrees, however, the valve is opened by the thermostat and circulation is permitted. When 200 degrees is reached the valve is wide open.

An attempt to use this model in connection with forced circulation would lead to trouble, as the water pressure would probably result in damage to the pump or the thermo-valve itself because of the closed passage. Therefore a different arrangement is used, as shown in Figs. 4, 5 and 6. The difference consists in the addition of a bypass (Fig. 5) enclosed in an extension of

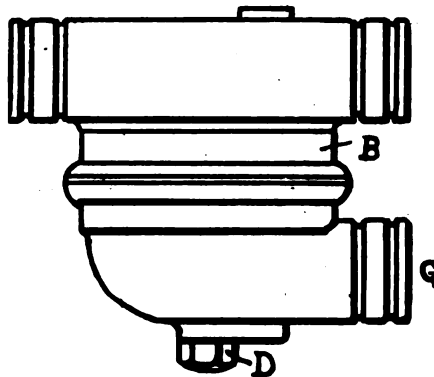


FIG. 4

the lower part of the thermo-valve and connected across the circuit by means of a tube G, Fig. 6, so that the active cooling agent, the radiator, is cut out and the uncooled water travels through a "short circuit" while the main valve is closed, until the motor is warm.

It is pointed out by the makers of this device that the gasoline motor is a heat

engine and that the hotter it can be worked, within certain practical limits, the higher its efficiency. This point is illustrated by the well known efficiency of air-cooled motors of good design. Moreover, the heavier grades of gasoline require more heat for their carburation than the lighter, and year by year the standard of fuel supplied by the refiners goes lower and more heat is needed for its use. It is not claimed that the thermo-valve will create heat for a cold motor, but that it will conserve heat and prevent over-cooling in cold weather.

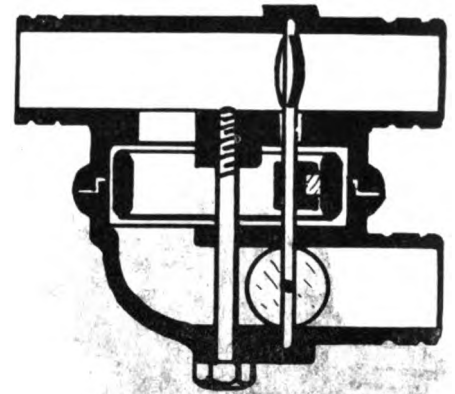


FIG. 5

The thermo-valve is the development of H. H. Wixon, who invented the Imperial-Wixon compound tire pumps and who for three years was connected with the engineering department of the Stromberg Motor Devices Co., of Chicago.

When Too Much Oil Causes Overheating.

Incongruous as the suggestion may seem, the overheating of a multiple disk clutch that is designed to operate in an oil bath

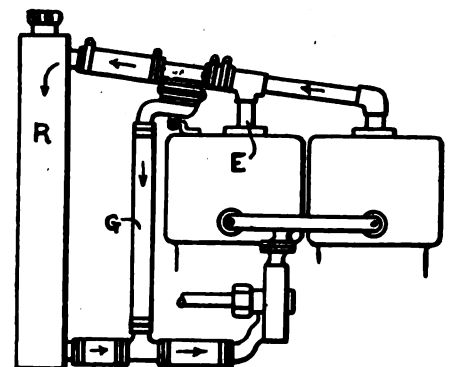
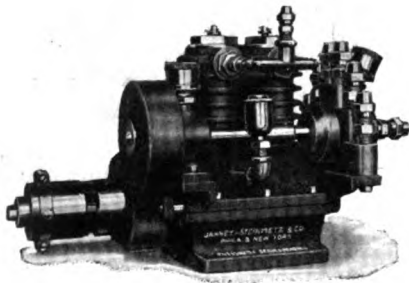


FIG. 6

may be due to the presence of too much oil in the housing quite as well as to a shortage of lubricant. The reason for this is that too much oil causes excessive liquid friction, the result being that the disks heat up quickly and retain their heat. Clutches which are designed to operate dry never should be lubricated, of course, and though too much oil in the housing of clutches of the other variety is better than none in any case, the best results will be obtained if the quantity prescribed by the manufacturer is not exceeded.

Janney-Steinmetz Produce a Self-Starter.

The mere fact that self-starters have been so long in attaining practical form indicates to the discerning that the obstacles to be overcome are real, very real, which lends point to the fact that when such a long-established firm as Janney, Steinmetz & Co., of Philadelphia, produces a device of the sort it is likely to command uncommon attention. Briefly, the Janney-Steinmetz invention, which is shown by the accompanying illustration, utilizes compressed air for starting the motor. A double-cylinder air compressor charges a steel tank with air to a maximum pressure of 150 pounds to the square inch. Pressure on a valve-button on the footboard of the car admits air to the cylinders of the motor, the air first passing through a rotary



distributor which supplies the cylinders in their firing order. On the dashboard is a pressure gauge which indicates the pressure in the tank; starting an average sized motor once causes the pressure to drop from three to five pounds, and a short run of the pump soon brings the needle back to top notch. A positive clutch enables the driver of the car to start his compressor at will while the motor is running and as readily cut it out when the proper pressure is attained. The distributor has a ball-bearing rotor which takes the thrust of the compressed air, and may if so desired be run on a timer shaft, or any shaft running at camshaft speed. All parts of the air pump are lubricated by splash, one filling of oil being sufficient, the makers state, to lubricate it while the car runs a thousand miles. Mounted on a single base, seven inches wide and eight inches long, the pump and rotating distributor weigh less than 25 pounds. True to its mission as a conservator of human energy, the outfit can be used for inflating tires as well as starting the motor.

Considers Automobiles a "Necessity."

While the reports published several weeks ago, stating that the United States government intended to purchase 2,000 motor wagons for army use, were shown to be premature, to say the least, it seems assured that the government will go into the buying of motor-propelled vehicles more heavily than is generally believed. Secretary of War Stimson has given the matter considerable thought, and as the result of an inquiry from him the Inspector-General of the regular army, General A. W. Brew-

ster, has made the following terse recommendation as to the usefulness of motor trucks in army service: "Automobiles are a necessity for commanding generals of divisions and higher units. It is recommended that rigid experiments be made with motor trucks and motor ambulances to show their suitability for field use."

Red Fluid to Indicate Fuel Level.

When the cooling water in the radiator and cylinder jackets of a motor car begins to run low the driver is amply warned by sundry spurts of steam, and when the supply of lubricating oil is nearly exhausted the sight-feeds show queer little bubbles that foretell the end; but when the last thimbleful of gasoline trickles into the carburettor it wends its way through dark and devious paths, unheralded, and only when the motor, deprived of its life-blood, coughs, chokes and dies, does the motorist come to a realization that his gasoline tank is dry. Therefore a reliable instrument that can be attached to the dashboard and will indicate at all times the level of the fuel in the tank is a thing much to be desired, and this the Van Auken Indicator Co., of 123 Liberty street, New York, believes it has evolved in the "Vanometer."

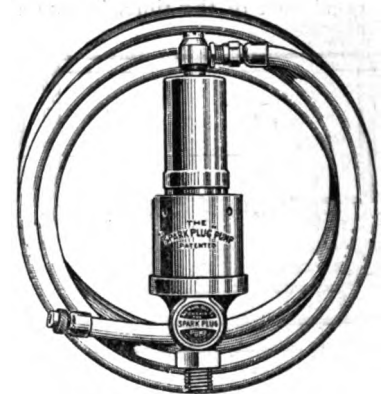
It comprises a brass-cased glass tube on the dashboard in which a broad band of vivid red liquid rises and falls with the changing level of the gasoline in the tank; the only connection between gauge and tank is a small metal tube of about the diameter of a lead-pencil which is run out of sight under the floor, and passing through a hole in the top of the tank, reaches to the bottom of the tank. When gasoline is poured into the tank it rises also in the little tube, compressing the air trapped in it. The pressure is carried to the dashboard gauge and raises the red signal. According to the manufacturers it takes a temperature of 20 degrees below zero to freeze the red liquid; further, they say that changes in the position of the tank, as when going up or down hill or driving with two wheels in a ditch, will not induce the Vanometer to depart from the truth, and that the gauge can be placed in any place that may be convenient, above or below the level of the tank. It is made for either pressure or gravity tanks and can be installed in a few hours.

Cincinnati Dealers to Hold Two Shows.

Having found the Music Hall in Cincinnati, Ohio, not large enough for a display of pleasure cars and commercial vehicles during the same week the Cincinnati Automobile Dealers' Association will hold two shows. Pleasure cars will be on display during the entire week of February 19-24, and for three days, February 26-28, commercial vehicles will be staged.

Mayo, Too, Makes Tire Inflation Easier.

With an abundance of mechanical power available, it is rather a matter for wonder that motorists so long have been slaves of the hand operated tire pump. It is a long lane that has no turning, however, and the motorist now can take his choice of several types of appliance as substitutes for human energy in performing the detested task of pumping up tires. One of the newest of these is the "Spark Plug" tire pump, so called because it screws into the place of a spark plug in one cylinder of a multiple-cylinder motor, and which its maker, the Mayo Manufacturing Co., of



Chicago, claims to be capable of compressing air up to 150 pounds to the square inch and of fully inflating the largest tire in about four minutes.

The piston of the pump is actuated by the compression in the cylinder of the motor, and as the upper or pumping end of the piston is smaller than the lower or power end, there is a multiplying action which results in a pressure higher than that in the cylinder to which the tire pump is attached. Piston rings and generally substantial construction tend to make the device efficient and long-lived. Only pure air, taken in through a little valve in the pump, is delivered to the tires. The pump is provided with twelve feet of special rubber tubing, tire valve connections and with various sized fittings.

Brazil Big Buyer of French Cars.

Although France still records a greater export of motor cars than any other country, its sales are not increasing as rapidly or as steadily as those of the United States, the figures for the ten months ending October 31, 1910 and 1911, being \$28,962,400 and \$29,802,800, respectively; representing a gain of \$840,400, or less than 3 per cent.. Brazil accounting for the greater part of the increase. Imports during the same respective periods rose from \$1,442,800 in 1910 to \$2,176,000 in 1911, an increase of \$731,200, or 51 per cent. Of the imported cars, the United States supplied \$427,800 in 1911, an increase of over 300 per cent. over the \$137,400 in the first ten months of 1910. The entire gains in French exports were contained in the trade with Brazil, Turkey and Austria.



997,258. Internal Combustion Engine. Frank X. Bachle and John C. L. Krebs, Clyde, Ohio. Filed Nov. 11, 1909. Serial No. 527,560.

1. A multiple cylinder engine having its cylinders each provided with a pumping chamber, a combustion chamber and an air compressing chamber, the pumping chamber having one port leading thereto and the combustion chamber having two ports leading thereto, one of such two ports leading from the associated air compressing chamber, a rotary valve co-operating with said ports to admit gas to and from the pumping chambers and then to the combustion chambers through one of the ports of each combustion chamber, and to admit scavenging charges of air to each combustion chamber from its compression chamber, substantially as described.

997,273. Vehicle Brake. Thomas A. Coleman, St. Louis, Mo. Filed Mar. 21, 1910. Serial No. 550,598.

1. A vehicle brake comprising a depending frame which is pivotally mounted and adapted to swing free of the ground, a shoe mounted on said frame and adapted to be moved into contact with the ground, mechanical means for operating said shoe, a releasable device for rigidly holding the frame in normal position, and a tripping device arranged and adapted to release said

holding device so that the frame is free to swing out of the way of an obstruction lying on the ground in the path thereof.

997,290. Brake. James A. Hart, Trenton, N. J. Filed May 24, 1910. Serial No. 563,117.

In a brake, the combination with a support and a brake drum; of a split band embracing the drum and secured at one end portion to the support, a stud located on the secured end portion of the band and extending radially with respect to the drum, a disk having an eccentric opening to freely receive the stud and provided with radial arms, one of said arms having its free end portion adapted to loosely engage that end portion of the band opposite the one to which the disk is connected, and means connected with the opposite arm serving to rock the latter, for the purpose described.

997,302. Resilient Wheel. Charles A. Langford, Rio, Wis. Filed July 28, 1910. Serial No. 574,364.

A resilient wheel comprising a hub, an annular air chamber encircling said hub and connected thereto, tubular spokes radiating from the outer wall of said chamber and made integral therewith, said chamber and said spokes being adapted to contain air under pressure, there being communicating passageways between said spokes and said chamber, a rim connecting the outer ends of said spokes integral spaced bosses on said rim provided with recesses to receive the ends of said spokes, an outer rim, a plurality of piston rods fixed to said outer rim and extending into said spokes, pistons in said spokes and fixed to said rods, said bosses being provided with elongated radially disposed re-

cesses upon opposite sides of said rods, ball bearings in said recesses, and check valves at the inner ends of said spokes controlling said passage ways between the spokes and the chamber, whereby said passage ways are closed as the piston moves inwardly and open as the pistons move outwardly, substantially as described.

997,315. Oiling Device. William L. Morris, Batavia, Ill., assignor to S. F. Bowser & Company, Incorporated, Fort Wayne, Ind., a Corporation of Indiana, Filed June 19, 1903. Serial No. 162,173.

1. In an oiling device, the combination with an oil-cup having an oil inlet and an oil outlet, of a piston fitting in said cup and adapted to control said oil outlet, said piston being operated by the pressure of the oil in said cup and being provided with a passage-way affording communication between the upper face of said piston and said oil outlet.

997,388. Spring Wheel and Tire. George Lincoln Hays, Bellevue, Pa. Filed Oct. 8, 1910. Serial No. 586,043.

1. A wheel of the character set forth comprising a hub composed of united stamped metal sections having circular flanges, a tire composed of united stamped metal sections and carrying a tread member, clips on the flanges of the hub sections and on the tire sections, resilient spokes having coiled portions and flattened heads at their extremities to fit in said clips, pivots uniting the heads of the spokes to said clips, telescoping tubular casing members arranged on the spokes and bearing against the tire and hub to completely envelop the spoke and its connections, stops within the telescoped ends of the casing

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members, and coiled springs on the spokes and engaged with said stops.

997,398. Pneumatic Tire. Francis Ather-ton Macon, Henderson, N. C. Filed Feb. 20, 1911. Serial No. 609,721.

1. In a pneumatic tire, a series of independent collapsible air chambers, means whereby said chambers are independently inflated, a protective casing arranged around each of said chambers, said casings comprising boxes formed in inner and outer sections, said outer sections having a telescoping engagement with said inner sections, a tube formed on the bottom of each of said inner sections, said tube being adapted to be inserted through the rim of a wheel whereby this end of the casings are secured to the rim, lugs formed on the opposite end of the sections and adapted to be inserted beneath the fastened ends of the adjoining sections whereby said casings are held in place and flanges arranged on the outer sections of the boxes and adapted to slidably engage the outer sides of the inner sections.

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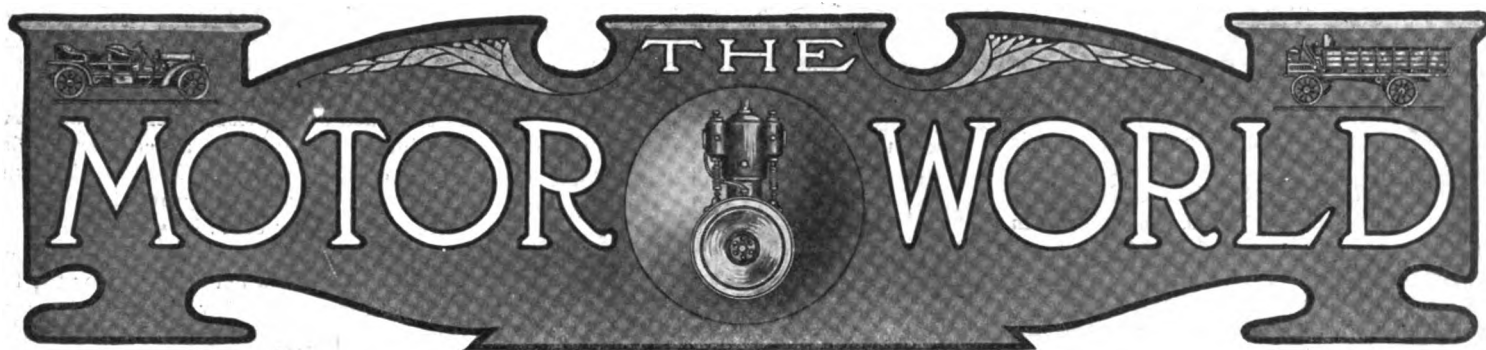
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FISH BECOMES STUDEBAKER'S HEAD

Retirement of J. M. Studebaker Causes Official Changes—New Office of General Manager Created.

Because of the desire of J. M. Studebaker to be relieved of the presidency, a special meeting of the directors of the Studebaker Corporation was held in New York on Saturday last, 9th inst., at which Frederick S. Fish, first vice-president, was elevated to the higher office. Mr. Studebaker, who has reached a ripe old age, was made chairman of the board, which is largely an honorary office. Clement Studebaker, Jr., was elected first vice-president and chairman of the executive committee; A. E. Erskine was re-elected treasurer, and Scott Brown secretary and general counsel; Frederick P. Delafield was continued as special counsel.

A new office, that of general manager of the corporation, was created, which was filled by the appointment of J. N. Gunn, of New York. His duties will be to "coordinate the administrations of the automobile division, the horse drawn vehicle divisions and the harness divisions of the Studebaker business." Mr. Gunn is of the New York firm of Gunn & Richards, production engineers. He already has performed special service for the Studebaker Corporation, and his designation as general manager now makes him a regular member of its staff. The changes made do not affect the positions of Walter E. Flanders, as vice-president and general manager of the automobile division and F. K. Parks as vice-president in charge of accounts.

Steinbock to Form a New Company.

H. E. Steinbock, who for several years was in charge of the Maxwell-Briscoe engineering department and who, after the Brush Runabout Co. was taken over by the United States Motor Co., was temporarily transferred to the Brush Runabout Co. in

Detroit, also a United States Motor subsidiary, has resigned all connection with the big company and is preparing to strike out on his own account. He is designing a new car which it is expected will be placed on the market in the early spring by a new company which will be backed by a number of moneyed men in Westchester County, N. Y., in which the Maxwell-Briscoe factory is located.

Colby Control Passes to New Hands.

The controlling interest in the Colby Motor Co., of Mason City, Iowa, last week passed into new hands which are understood to be identified with the National Farm Machinery and Implement Co., a \$5,000,000 Iowa corporation. As a result the executive officers of the company also underwent a change, the new officials elected being as follows: President, J. E. Burmeister; vice-president, Wm. M. Colby; treasurer, H. S. Murphy; secretary, W. N. Smith; general manager, D. W. Henry.

Messrs. Burmeister, Murphy and Smith are the new men who entered into the company's affairs. W. M. Colby, the vice-president, was the head of the old company. While the new management will increase and not lessen the production of pleasure cars, more attention than heretofore will be devoted to the development of trucks, a full line of which is in hand.

Goodyear Declares 12 Per Cent. Dividend.

The Goodyear Tire & Rubber Co., of Akron, O., has declared an annual dividend of 12 per cent. on its common stock, payable January 1 to holders of record December 22. This is an increase of 5 per cent. over previous disbursements, which have been at the rate of 7 per cent. per annum. It is stated that the gross sales of the company this year were approximately \$13,000,000, and that it earned slightly in excess of 50 per cent. on its \$2,284,000 common stock.

New Britain Makers Build First Trucks.

The New Britain Machine Co., of New Britain, Conn., has taken up the production of motor trucks. It already has completed two vehicles, built on special order.

RAJAH SPARKS AGAIN HIT LEAGUE

Buffalo Institution and Its President Pay \$1,650 for Contempt—When Imitation Is Unfair Competition.

Burnt children may dread the fire, but A. C. Bidwell, of Buffalo, N. Y., who operates the private corporation styled the International Automobile League, apparently is not a child of that sort. Possessed of nimble wit and nimble fingers he has toyed with fire so often that his hands may have become calloused, but calloused though they may be, Bidwell probably will "have a care" before he again attempts to defy the fire that flies from the Rajah spark plug or any plug that resembles it; if the sparks leave no mark, they are unduly expensive to him.

The so-called league, which to all intents and purposes is Bidwell, toyed with a counterfeit Rajah plug last spring and paid a \$250 fine for doing so, but the lesson was not stern enough and Bidwell and his "league" continued quietly to defy not only the Rajah Auto-Supply Co. of Bloomfield, N. J., but the United States Court, with the result that last week Judge Lambert, sitting in that court in Buffalo, fined Bidwell personally \$250 and the International Automobile League, \$1,000 for contempt of court on four counts and assessed the costs, \$400, against the league. The fines imposed are the limit permitted by law.

The contempt consisted of having sold imitations of the Rajah plugs and porcelain in violation of the perpetual injunction issued in March last, the court holding Bidwell guilty of being personally responsible for at least one of the four sales.

The so-called league's offense was flagrant. The Rajah Company first obtained a temporary injunction restraining it from selling the counterfeit plug, and it was while in Buffalo to argue for a permanent decree, that the Rajah patent counsel, Emerson R. Newell, dropped into the league's

THE MOTOR WORLD

bargain-counter establishment, and by personal purchase found that despite the injunction, the offending plugs still were being sold. The permanent injunction was granted and the league was fined \$250 for its contempt. Apparently believing that the Rajah people were no longer on his trail, Bidwell seemingly took a chance of "working off" his stock of counterfeits, only to learn, at a cost of \$1,650, that the Rajah principals were very much awake.

The unusual part of the proceedings is that no patent was involved. The Rajah Auto-Supply Co. acted under the law applying to unfair competition, the court holding that the company was entitled to the exclusive use of its distinctive design of plug and porcelain even though Bidwell did not employ the registered trademark "Rajah."

Kelsey Motorette in Bankruptcy Court.

Following an attachment placed on its property by a New York creditor, the C. W. Kelsey Mfg. Co., of Hartford, Conn., on Thursday last was petitioned into bankruptcy and Lawrence A. Howard appointed receiver. The petition was filed by Howard acting for a creditors' committee and was designed to protect the interests of the creditors. The company, which manufactured a three-wheel "motorette," has been in straightened circumstances for some time and the creditors' committee, represented by Howard, had been seeking to find a way out of the difficulty. Filing of the attachment, however, complicated matters and practically required that bankruptcy proceedings be instituted. No statement of assets and liabilities as yet has been made public. The company was organized about a year since and conducted an active campaign, but at no time did its output attain any considerable volume.

Treadwell Takes Over Lebanon Castings.

The Lebanon Steel Casting Co., of Lebanon, Pa., which made small steel castings for the automobile trade, has been absorbed by the Treadwell Engineering Co., of Easton, Pa. The manufacture of these steel castings will be continued but hereafter they will be produced from an electric furnace, the crucible process having been abandoned. By the electric furnace system it is claimed that it is possible to obtain an elastic limit 20 per cent higher than can be secured by any other process and that the percentage of carbon can be absolutely controlled, permitting castings to be made as hard or as soft as desired.

Kulka Opening Markets for Accessories.

L. J. Kulka, representing the Emil Grossman Co., of New York, is now in Europe with a view to opening markets for American automobile accessories. In addition to the Grossman lines, Kulka, through the Grossman company, is prepared to represent one concern in each line of automobile accessory manufacture.

EXPORTS MOVE UP 75 PER CENT.

Canada Still Remains Heaviest Buyer— Oceania and South America Show Largest Proportionate Gains.

Despite the falling off in exports to seven of the twelve geographical divisions, the figures for the month of October, 1911, show the remarkable gain of \$584,745 in total value of automobiles and parts exported from this country, as compared with the corresponding month of 1910, the figures being \$1,356,384 and \$771,639, respectively, representing a gain of more than 75 per cent. Of this total amount, \$1,043,093 is the value of 952 complete cars, as against 529 cars valued at \$647,785 in October, 1910, while \$313,291 represents the value of parts sent abroad, as compared with \$123,854 during the same month of the preceding year.

As has been the case during the past six months, the gains made by South America and British Oceania by far exceed the losses experienced in Mexico, Germany, France and Other Countries. British Columbia increased its purchases from \$79,219 to \$248,985, a gain of 240 per cent., while South America took \$100,066 worth as against \$32,390 in October, 1910, an increase of more than 200 per cent. The United Kingdom, too, which for some months had remained stationary, as far as automobile exports from the United States are concerned, increased its purchases during October by fully 102 per cent. over those in the same month of last year, the figures being \$237,109 and \$115,158, respectively.

During the ten months ending October 31, 1911, no less than 12,196 cars, valued at \$12,608,127, and parts valued at \$2,736,550, were sent abroad, as compared with 7,011 cars, valued at \$9,521,851, and parts to the value of \$1,669,787, during the same period of 1910. Canada still is by far the best customer, taking \$4,880,911 worth of cars, with England (\$2,407,373), British Oceania (\$1,602,383), South America (\$967,358) and Asia (\$647,067), following in the order named. The report in detail:

	October		Ten months ending October	
	1910	1911	1909	1911
Automobiles and parts of—				
Automobiles	\$647,785	\$1,043,093	\$5,921,033	\$9,521,851
Parts of (except tires)	123,854	313,921	701,593	1,669,787
Exported to—				
United Kingdom	115,158	237,109	1,839,772	2,498,171
France	19,898	19,582	789,735	679,757
Germany	23,250	5,744	157,974	322,998
Italy	1,937	3,782	214,430	355,522
Other Europe	20,994	33,892	302,968	641,962
Canada	284,612	277,624	2,120,600	4,422,383
Mexico	72,435	39,850	375,153	571,962
West Indies and Bermuda	30,021	21,195	232,137	321,766
South America	32,390	100,066	158,701	334,337
British Oceania	79,219	248,985	192,337	413,441
Asia and other Oceania	65,966	35,262	138,216	451,998
Other Countries	25,759	20,272	100,603	177,341
Total	\$771,639	\$1,356,384	\$6,622,626	\$11,191,638
				\$15,344,677

October Figures Disclose Import Uplift.

Statistics of imports of foreign-made automobiles for October last hold more hope to importers than has been the case for many months past, no less than 103 cars, valued at \$207,059, reaching this country during that month, as compared with but 59 cars, valued at \$125,919, in the same month of the preceding year. Despite this increase of 64 per cent., however, the losses sustained in the early part of the year were sufficient to cause a net decrease for the ten months ending October, 1911, of 95 cars, valued at \$91,778, the figures for the months of October 1910 and 1911, being, respectively, \$1,749,059 and \$1,657,281. For the ten months ending October, 1911, \$266,992 worth reached this country from abroad, a loss of \$349,197 as compared with the \$615,189 imported during the same period of 1910. The following table gives a comparison of the last two years' imports:

	October	
	1910	1911
Automobiles and parts of—		
Automobiles	\$125,919	\$207,059
Parts of	23,409	31,398
Imported from—		
United Kingdom	9,821	54,054
France	63,704	67,896
Germany	16,354	34,738
Italy	25,789	23,449
Other Countries	10,251	26,922
Totals	\$149,328	\$238,457

Tire Exports Pass Two Million Mark.

Although the value of American automobile tires exported during October, 1911, was not as great as during the preceding month, the demand maintained its upward trend. During the month there were sent abroad \$138,744 worth of tires, as compared with \$103,788 in the same month of 1910. During the ten months ending October, 1911, \$2,080,517 worth were sent abroad, but no comparison with last year is available, as the government did not list tires separately previous to July, 1910.

Rayfield Car May Remove to Christman.

It is not improbable that the Rayfield Motor Car Co. will remove from Springfield, Ill., to Christman in the same State. There is a factory in the latter town which will be occupied if the citizens of Christman produce a bonus of \$100,000.

DURANT-DORT TAKES UP TRUCKS

**W. C. Durant's Original Carriage Company
Enters Motor Vehicle Industry—Will
Build "Best" Trucks.**

The Durant-Dort Carriage Co., of Flint, Mich., which is a prodigious producer of popular-priced horse-drawn buggies, and in which the Buick car practically was conceived, formally has entered the automobile trade. It is building a two-cylinder opposed truck, which will be styled "Best," in what is described as the Flint Motor Wagon department of its plant.

The Durant-Dort company is the same which gave W. C. Durant to the automobile industry, and in which he made his first fortune, indeed, he still is its vice-president, and the fact that recently he became the power behind the thrones of both the Mason Motor Co., engine builders, and the Little Motor Car Co., which recently were organized in Flint and the latter of which acquired the plant of the Flint Wagon Works, lends point to the Durant-Dort company's entry into the automobile industry at this time. Like Durant, J. D. Dort, president of the Durant-Dort Carriage Co., was an original prime mover in the Buick Motor Co., of which C. W. Nash now is general manager, to which office he was appointed after the General Motors Co. acquired control of the property. Nash is also vice-president of the Durant-Dort company and Durant occupies a similar office in the General Motors Co., which \$60,000,000 corporation he organized and dominated until a year ago.

The Best truck, which Durant-Dort will manufacture, will be of 800 pounds capacity. Its two-cylinder motor will be of 4½-inch bore and stroke, and will be positioned under the floorboard in front of the driver's seat. It will employ friction transmission, thermo-siphon cooling and jump-spark ignition effected by means of a high tension magneto and an auxiliary battery-coil system for starting. By way of insuring that a maximum speed of 18 miles an hour cannot be exceeded the motor is equipped with a centrifugal governor which operates through the throttle. The same governor also serves to advance and retard the spark automatically according to the speed of the motor.

The radiator is spring mounted and connection between it and the motor is made by means of quick-detachable couplings. The radiator itself is held in place by a rod which passes through it from side to side, the removal of which permits the radiator to be taken off easily and quickly, leaving the motor and all the mechanism in front of the car accessible. Semi-elliptic springs support the chassis in the front and those in the rear are full-elliptic. The front wheels are shod with 32x2-inch solid rubber tires and the rear with 34x2-inch tires. Though

panel or express bodies are supplied as standard equipment, almost any style of body may be fitted to the chassis to suit the requirements of the purchaser. The standard body is 40 inches wide and the loading space is 63 inches long; the floor line of the body is 31 inches from the ground.

Demotcar Factory Passes to New Hands.

C. H. Ritter, a wealthy, retired wholesale liquor dealer in Detroit, has acquired possession of the plant of the Demotcar Co. at 1305 Bellevue avenue, Detroit, the operation of which will be at once resumed. Associated with Ritter are R. A. Skinner, who previously was in the printing business, and A. W. Voegel, one of the trustees of the bankrupt Demotcar Co. The factory now will produce a four-cylinder runabout which will sell for \$685, complete with top, windshield, lamp equipment and gas tank. The motor will be of 3¼ inches bore by 3¾ stroke and the cars, which will have a wheelbase of 90 inches and which will be equipped with 30 x 3-inch tires, will employ a multiple disk clutch and a two-speed transmission.

Klaxon Files Suits Against Ever-Ready.

The Lovell-McConnell Mfg. Co., of Newark, N. J., has filed a series of suits in the United States Circuit Court for the Southern district in New York against the American Ever-Ready Co. of New York, all of them based on infringement of the patents covering the Klaxon horns. The first suit alleged unfair competition and an imitation of these warning signals and also specific infringement of the Klaxon patents Nos. 923,048, 923,049 and 923,122. This suit was followed on the 8th inst. by one of similar nature which alleged infringement of Klaxon patents Nos. 956,898 and 957,161. Another suit alleging infringement of the Klaxon design patents Nos. 39,785, 39,801 is in preparation.

Truck Making Starts in West Virginia.

The Kanawha Auto Truck Co., of Charleston, W. Va., which recently was incorporated with \$50,000 capital, will engage in the manufacture of the Kanawha truck, which is a design of W. S. Roberts and D. S. Guenther, president and superintendent, respectively, of the company. The first model, a two-ton truck, already is being demonstrated and it is expected that two others will be ready by show time. When the plant in Charleston is completely in operation, it is expected that the company will be able to produce 250 trucks for the 1913 market.

Kelly Goes to Europe for Electric Data.

George H. Kelly, manager of the commercial department of the Baker Motor Vehicle Co., of Cleveland, sailed last week to Europe to study transportation problems and to obtain data regarding electric trucks operating on the Continent. He will be absent about six weeks.

WHY LINDSAY AXLE SUITS FAILED

**Collapse of Case Against National Discloses the Reason—End of Patents
That Became Almost Famous.**

Just what caused the sudden collapse of the chain of suits instituted by Thomas J. Lindsay and Willard Harmon, the Indiana inventors who claimed to hold basic patents on the so-called "floating axle," has been made plain as the result of the dismissal of their action for infringement against the National Motor Vehicle Co., of Indianapolis, which was the first of the suits to be filed and the last one to be dismissed. The action was brought in 1905 and lay dormant until this year, when it was revived. It was argued in June last and while Judge Anderson of the United States Court in Indianapolis had the case under advisement, the complainants requested a re-argument, which was set for November. But before the time arrived, according to the National Company, Lindsay and Harmon became convinced that one of the anticipations that had been brought to bear, a British patent granted to Elliott in 1893, so clearly antedated all they claimed that they voluntarily decided to dismiss the action.

The so-called Lindsay axle patents, two in number, disturbed the industry at several periods during the past three or four years. Originally, the Timken Axle Co. operated under them but later repudiated them and extended litigation with the patentees resulted. While it was going on the inventors offered their rights for sale to many persons and the "independent" or anti-Selden Association that was in being at the time. They were heralded as rivaling the Selden patent in scope and importance; but no one would touch them. Although the suit against the National Motor Vehicle Co. had been pending for years no effort was made to push it to a conclusion. Instead, Lindsay and Harmon made a show of activity within the past twelve-month by suddenly bringing actions against a number of makers and dealers within the Indiana jurisdiction, all of which were dismissed in the course of the past 60 days. The National case was the last one that so collapsed.

The complainants based their suit on two patents, No. 612,360, dated November 11th, 1898, and No. 748,760, dated January 4th, 1904, issued to Lindsay and Harmon. Patent No. 612,360 covers a "motor vehicle" and purports to cover the construction of an entire vehicle, but in this case the only part under consideration was the rear axle. The three claims of the patent with some variations of language claimed substantially "the combination in a vehicle, with a suitable motor and the vehicle frame, of a tubular axle casing on said frame inclos-

ing the driven axle, and having wheel-supports on its outer ends, wheels mounted on said wheel-supports the hubs whereof contain internally-toothed gear-rings, and an axle within said tubular axle-casing and having pinions on its ends which engage with said gear-rings."

Patent No. 748,760 purported to be a "driving-axle structure for motor vehicles," which is the rear-axle, and while the three claims in the suit differ somewhat the substantial claim was "In a motor-driven vehicle, the combination, with a pair of tubular axle structures, of a pair of casing-sections connecting the adjacent ends of said tubular axle structures, and one of said casing-sections being detachably connected a pair of shaft-sections revolvably mounted in the tubular axle structure and projecting into the casing-sections, an axially-separable driving connection between the shaft-sections from which the shaft-sections may be outwardly axially withdrawn, and independent means for normally retaining the shaft-sections against axial displacement, said means being removable to permit the outward withdrawal of each shaft-section from the structure."

The complainants contended that the National Motor Vehicle Co. used the mechanism of the two patents conjoined in one rear-axle so that both patents were infringed. They sought to have the court hold that the function performed by the pinions on the ends of the live-axles and the internal gears in the wheel-hubs which parts were not to be found in the defendant's rear axle, was transferred to another part of the vehicle, and the defendant claimed that it had discarded these parts and their functions so that there was no infringement, even if the earlier patent was valid.

It denied that there was any real novelty in the second patent. The record was very voluminous, almost a hundred patents and motor vehicles being put in evidence, among which were also British and French patents, among them the Elliott patent, which was the oldest patent and the one that decided the day.

McCord Increases Room and Productions.

The McCord Mfg. Co., of Detroit, just has completed an addition to its factory building, which will provide 12,000 additional square feet, and an extension of 4,000 square feet to its foundry. The enlargement will enable it better to take care of the production of the Hill-Precision lubricators and oiling devices, the rights to which it recently secured from the Precision company of Chicago, and which, with the McCord devices, give the Detroit company a complete line of mechanical lubricators of all types. The McCord company also recently has added to its line a cellular radiator of approved design which will be produced in connection with its well known tubular type radiator.

SUPREME COURT O.K.'S RETAIL TAX

Test of Pennsylvania Law Goes Against Automobile Dealers—Contracts With Manufacturers Discussed.

In an opinion delivered by Justice Lamar and representing the unanimous decision of the court, the United States Supreme Court last week pointed out when the retail sale of automobiles does not constitute interstate commerce and more or less directly touched on the character of contracts existing between manufacturers and dealers.

The opinion was rendered in the case of the Banker Brothers Co., a Pittsburgh corporation, plaintiff in error against the Commonwealth of Pennsylvania, the proceedings being in the nature of a test of the Pennsylvania law which imposed a tax of 1 per cent. on retail vendors of automobiles on their sales of automobiles made to persons in Pennsylvania. The Banker Brothers Co. had been taxed on sales aggregating \$351,000. and being beaten in the State courts carried the fight to the highest tribunal, denying liability on the ground that the sales were interstate transactions.

A decision of that point, said Justice Lamar in his opinion, involves the question as to whether Banker Brothers Co. acted as principal or agent of a New York manufacturer—the George N. Pierce Co., of Buffalo, which in 1905 executed a contract by which it agreed "to build for and sell automobiles to Banker Brothers Co. at 20 per cent. less than list prices. Deliveries to be f. o. b. Buffalo as soon as practicable after order for deliveries are received. Payment to be made in cash."

The Banker Brothers Co. kept no machines in stock except those used for demonstration, and was allowed to sell only within a restricted territory on terms stipulated by the manufacturer. The purchaser of the machine was required to pay at least 10 per cent. when he signed a printed form addressed to Banker Brothers Co. requesting it "to enter my order for — motor car, for which I agree to pay the list price f. o. b. factory, as follows: \$..... upon signing this order, and the balance upon delivery of the car to me."

The name of the Pierce company did not appear anywhere on this printed form furnished by it, but when the Banker Brothers Co. accepted the order it remitted the cash to the Pierce company. If the latter accepted the order, it agreed thereupon to manufacture the automobile and ship it, drawing upon Banker Brothers Co. for the balance of the list price, less 20 per cent., with bill of lading attached. The Banker Brothers Co., on paying the draft, took up the bill of lading, received from the carrier an automobile which though shipped in interstate commerce had become at rest in the State of Pennsylvania. The Banker

Brothers Co. had the title and delivered it to the buyer on his paying the balance of the purchase money. Compare *Dozier v. Alabama*, 218 U. S. 124. The written contract was silent on the subject, but it was stipulated that the Pierce company warranted the machine direct to the purchaser.

Summarized, the Court's decision said:

"It is contended that Banker Brothers Co. were agents and the Pierce company an undisclosed principal. It is urged that the sale was an interstate transaction between the manufacturer and the purchaser, with Banker Brothers Co. merely acting as an agent which looked after the delivery of the machine and collected the purchase price.

"This is one of the common cases in which parties find it to their interest to occupy the position of vendor and vendee for some purposes under a contract containing terms which, for the purpose of restricting sales and securing payments, come near to creating the relation of principal and agent. But as between Banker Brothers Co. and the Pittsburgh purchaser, there can be no doubt that it occupied the position of vendor. As such it was bound by its contract to him and under the duty of paying to the State a tax on the sale.

"The name of the Pierce company was not mentioned in the order signed by the purchaser. Had there been a breach of its terms he would have had a cause of action against the Banker Brothers Co., with whom alone he dealt. If he had failed to complete the purchase the Pierce company would have no right to sue him on the contract. The fact that he was liable for the freight by virtue of the agreement to 'pay the list price f. o. b. factory' did not convert it into a sale by the manufacturer at the factory; neither was that result accomplished because, with the machine, Banker Brothers Co. also delivered to the buyer in Pittsburgh a warranty from the manufacturer direct.

"These were mere incidents of the intrastate contract of sale between Banker Brothers Co. and the purchaser in Pittsburgh, who was not concerned with the question as to how the machine was acquired by his vendor, or whether that company bought it from another dealer in the same city or from the manufacturer in New York. The contract was made in Pennsylvania, and was there to be performed by the delivery of the automobile and the payment of the balance of the purchase price. See *American Steel & Wire Co. v. Speed*, 192 U. S. 500; *American Express v. Iowa*, 196 U. S. 146. The court properly held it was not an interstate transaction, but taxable under Pennsylvania laws."

Small Failure in Oklahoma City.

The Wood-Knight-Hawk Co., which manufactured automobiles and carriages on a small scale in Oklahoma City, has filed a petition in bankruptcy. Its liabilities are \$7,794 and its assets are placed at \$21,350.

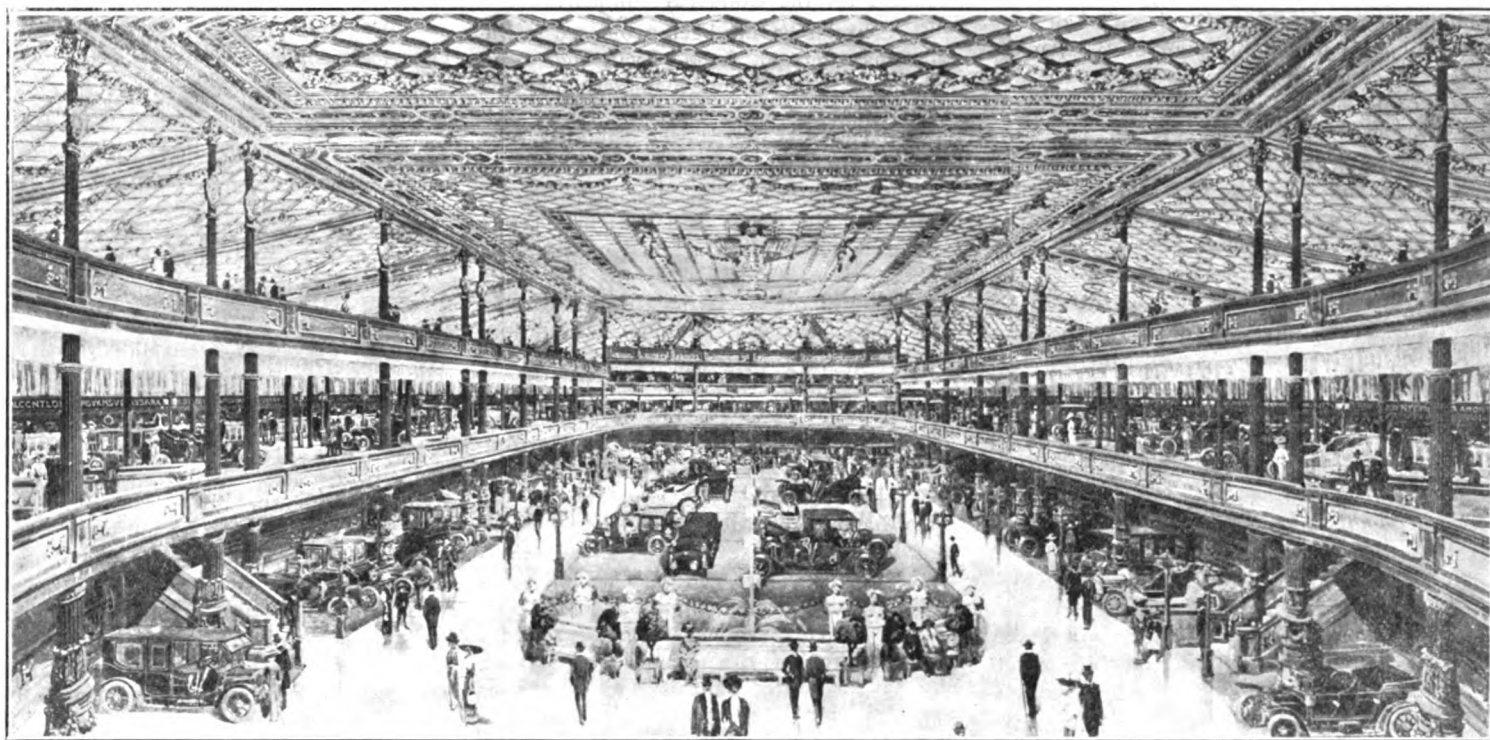
RED AND GOLD FOR THE GARDEN

Decorative Treatment to be Attractive as Ever—Record-Breaking Number of Exhibitors—First Complete List.

Despite the fact that the six-day bicycle race at present occupies the now "doomed" Madison Square Garden to the exclusion of everything else, the "foundations" for the twelfth annual automobile show already have been laid—the floor is in place and the bases of the huge pillars which will support the specially constructed elevated platforms and balcony already have been installed. The decorative work, the color

five of whom will show electrics; 311 accessory manufacturers and jobbers, and 19 motor-cycle manufacturers; a total of 390 exhibitors, as compared with 387 in the first week of last year's show, which then was the high record. The accessory makers include members of the Motor and Accessory Manufacturers, as well as non-members, the names of the latter and their space allotments being here published for the first time. During the second week 32 manufacturers will show commercial vehicles of all sorts and sizes, while a majority of the accessory manufacturers exhibiting in the first week will remain for the second week, augmented by a few newcomers who will only show their wares during the commercial vehicle week.

201 The Garford Co.
114 Haynes Automobile Co.
20 Hudson Motor Car Co.
50 Inter-State Automobile Co.
111 Jackson Automobile Co.
121 Knox Automobile Co.
10 Locomobile Co. of America.
7 Lozier Motor Co.
208 W. H. McIntyre Co.
204 Marquette Motor Co.
120 Matheson Automobile Co.
18 Maxwell-Briscoe Motor Co.
52 Mercer Automobile Co.
104 Metzger Motor Car Co.
12 Mitchell-Lewis Motor Co.
107 Moline Automobile Co.
118 Moon Motor Car Co.
119 National Motor Vehicle Co.



GENERAL VIEW OF THE MADISON SQUARE GARDEN SHOW AS IT WILL APPEAR WHEN OPENED ON JANUARY 6TH

scheme of which will be held in crimson and gold, is being carried on in several studios, where more than 200 artists and sculptors are devoting their talents and energies to the production of something that will be "worth while," while in Exhibition Hall, Jean Paleologue, the French artist, is painting a huge mural scene entitled "Sunset in California." An idea of the effect of the decoration is conveyed by the accompanying illustration.

The show—which is at the same time the first to be held under the auspices of the Automobile Board of Trade, successor to the Association of Licensed Automobile Manufacturers, and the last exhibition of any kind to be staged in the doomed Garden—bids fair to surpass any of its predecessors, both in quality and quantity of exhibits, when its doors are opened on January 6th next. During the first week there will be 60 exhibitors of pleasure vehicles,

The complete list of exhibitors and their allotted spaces is as follows—those marked with an asterisk (*) exhibiting during the first week only, those with a double asterisk (**) in the second week only; those accessory exhibitors without such designation will exhibit at both Parts I and II:

Pleasure Vehicles.

103 American Locomotive Co.
106 American Motors Co.
207 Atlas Motor Car Co.
112 Brush Runabout Co.
14 Buick Motor Co.
16 Cadillac Motor Car Co.
55 Cartecar Co.
21 Chalmers Motor Co.
117 Corbin Motor Vehicle Corp.
3 Dayton Motor Car Co.
105 Elmore Mfg. Co.
23 E-M-F Company.
8 Franklin Mfg. Co., H. H.

101 Nordyke & Marmon Co.
4 Oakland Motor Car Co.
202 Ohio Motor Car Co.
1 Olds Motor Works.
17 Packard Motor Car Co.
205 Palmer & Singer Mfg. Co.
11 Peerless Motor Car Co.
19 Pierce-Arrow Motor Car Co.
54 Pierce Motor Co. (Case)
5 Pope Mfg. Co.
108 Premier Motor Mfg. Co.
116 Pullman Motor Car Co.
22 Reo Motor Car Co.
109 Selden Motor Vehicle Co.
209 S. G. V. Co.
53 Simplex Automobile Co.
51 Simplex Motor Car Co.
203 Speedwell Motor Car Co.
6 F. B. Stearns Co.
13 Stevens-Duryea Co.
102 E. R. Thomas Motor Car Co.

(Continued on Page 821)

MANY TRADESMEN IN NEW PLACES

Long List of Those Who Just Have Changed Positions—Most of the Shifts Occur in the West.

R. D. Rocap, of Kalamazoo, Mich., has been appointed superintendent of the Alpena Motor Car Co., of Alpena, Mich. He succeeds George E. Cately.

A. B. C. Hardy, formerly manager of the Marquette Motor Co., of Saginaw, has been appointed general manager of the newly organized Little Motor Car Co., of Flint, Mich. He will assume his new duties on January 1st.

George B. Pratt, for several years sales manager for the Dean Electric Co., of Elyria, O., has joined the staff of the Anderson Electric Car Co., of Detroit. He will cover the State of Ohio and part of New York and Pennsylvania.

J. H. Newmark, for several years advertising manager for the Oakland Motor Car Co., of Pontiac, Mich., has been transferred to the advertising department of the General Motors Co., in Detroit, of which the Oakland company is a subsidiary.

George L. Lavery, formerly traveling representative for the Irwin-Robbins Co., automobile body makers in Indianapolis, has gone over to the Racine Mfg. Co., of Racine, Wis., which also produces bodies. He will represent the Racine company on the road.

F. H. Quick, formerly with the United Motors Indianapolis Co., has been added to the sales force of the Findeisen & Kropf Mfg. Co., of Chicago, manufacturers of Rayfield carburettors. Quick's particular field will be visiting the automobile manufacturers.

Eugene F. Ball, secretary and treasurer of the Ball-Fintze Co., Newark (O) jobbers, has resigned those offices and will sever his connection with the company on January 1st. He may re-enter the jobbing business on his own account or may go into the manufacturing field.

B. F. Blaney, who for two years has been general sales agent for the Johnson Service Co., of Milwaukee, has resigned that connection to become sales manager for the Havers Motor Car Co., of Port Huron, Mich. Blaney is now in the East interesting dealers in the new Havers "6-44."

H. E. Dove has been appointed manager of the Buick Motor Co.'s Cleveland branch, succeeding Ray M. Colwell, who resigned in order to devote his time to the manufacture and marketing of a self-starting device. Previously Dove was connected with the Buick sales department in Flint, Mich.

Frank M. Sealand, former Ohio sales supervisor for the Winton Motor Carriage Co., has been promoted to the management of the Winton branch in Detroit. He suc-

ceeds T. W. Henderson, who resigned to take charge of a motorcycle company in which he had become financially interested.

Leroy Hagerline, previously connected with the Packard Motor Car Co. of Philadelphia, has been appointed manager of the Packard Motor Car Co. of Pennsylvania, which has its headquarters in Harrisburg. The latter branch controls the Packard territory in Central and Eastern Pennsylvania outside of Philadelphia.

A. C. Leonard, who for the last nine years has been identified with Goodyear tires in San Francisco, latterly as manager of the Goodyear branch in that city, has resigned that position in order to engage in business on his own account. His duties will be assumed by N. D. Taylor, district manager for the Goodyear company.

C. A. Emise having been promoted to the sales management, J. M. Evans has been appointed advertising manager for the Lozier Motor Co., of Detroit. He is well equipped for his new duties, having served successively with the Mahin Advertising Agency, the Berlin Machine Co., the E-M-F Co., and the Brush Runabout Co. When the latter company was taken over by the United States Motor Co., Evans was given a position in the advertising department in New York, which he relinquished to join the Lozier staff.

West Virginia Norwalk Begins Operations.

The Norwalk Motor Car Co., of Martinsburg, W. Va., which was organized to take over the Norwalk (O.) company of the same name, which latter at the eleventh hour of the transaction was thrown into bankruptcy, will proceed with its plans despite the unexpected situation that developed. A. E. Skadden, former president and manager of the defunct corporation, and several other officials and a number of employees have removed to Martinsburg to undertake the production of the cars the West Virginia company will place on the market.

Kimball to Go Deeper Into Automobiles.

C. P. Kimball & Co., the well known carriage makers, who have dealt with automobiles on a limited scale, have executed a 25 years lease for a three-story concrete building, 380 x 160 feet, which is to be erected at Michigan avenue and 39th street, Chicago, for their occupancy. It will not be completed, however, for several months, when it will be employed for a considerable expansion of the Kimball body building and electric vehicle interests.

Wayne Motor Co. Admits Bankruptcy.

The Wayne Motor Co., of Detroit, on Monday last, 11th inst., filed a voluntary petition in bankruptcy, which disclosed liabilities of \$3,576.15 and nominal assets of \$14,303.63. Of this amount \$3,000 is in machinery and \$6,000 is the valuation of a completed engine.

THREE MORE ELECTRIC STARTERS

Apple, Dean and Detroit Companies Each to Produce One—All Combine Lighting and Ignition Features, Also.

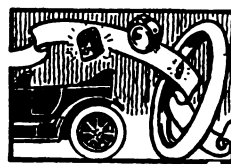
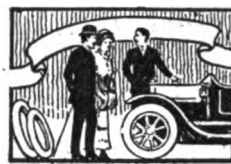
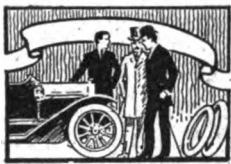
Despite the sudden and pronounced "arrival" of the self-starter in the form of compressed air starters, gasoline starters, acetylene starters and spring starters, to say nothing of others, more or less worthy, it has been a matter of comment that there has appeared in commercial shape but one starter in which an electric motor is used to rotate the crankshaft, notwithstanding the theoretical beauties of such an arrangement.

Those who took this to mean that the electrical people were "asleep at the switch," were much mistaken, however, for apparently they have been working quietly and developing their product without saying much about it. At any rate it now is known three brand new engine starters, all of the electric motor type are about ready for the market, all of them the product of experienced hands. The makers are the Apple Electric Co., Dayton, O., the Detroit Electric Appliance Co., Detroit, Mich., and the Dean Electric Co., Elyria, O. These three new starters are similar in that they are used in connection with electric lighting, ignition and signalling systems, taking current from storage batteries charged by a dynamo while the car is running.

In the case of the Dean invention the starter is designed to be built into the car as an integral part of its equipment, and is used in conjunction with the "Dynalux" generator—a producer of electricity that requires only two wires, which may be connected without reference to polarity. In the Dean system a new device also has been incorporated, called a "tell-tale," the object of which is to warn the driver of the car if his electric tail-light goes out. A relay device, called the "Centurion" lights a small lamp on the dashboard if the tail light ceases to burn; the signal may be a special lamp, or else any lamp that is not usually burning, such as the speed-indicator lamp. A feature of the Dynalux generator is a governor or regulator called the "speed limit" and its object to bring the rotative speed of the generator within reasonable limits and so avoid needless wear and severe mechanical strains on the dynamo.

Schacht to Offer Stock to Canadians.

The Schacht Motor Car Co., of Canada, which is located at Hamilton, Ont., and which is an outgrowth of the Ohio corporation of the same name, is about to offer for public subscription in the Canadian market 15,000 shares of its 7 per cent. cumulative preferred stock. As a bonus, 20 per cent of common stock will be given with each purchase of preferred.



A. V. Manning is erecting a one-story concrete and steel garage on South Broad street, Trenton, N. J.

The Boston Kissel Kar branch has been moved from Boylston street to the Motor Mart, 10 Columbus avenue.

F. Conrad, who operated a garage at 1516 N. Register street, Baltimore, Md., has sold his business to Diehl & Son.

The Paris-American Motor Car Co. has been organized at St. Louis, Mo. It is located at 2125 Shenandoah avenue.

E. B. McNaughton is building a one-story garage on Washington street, Portland, Ore. It will cost, when complete, \$7,500.

The Empire Automobile Co. is the style of a new concern that has "opened up" at 1517 S. Jefferson avenue, St. Louis, Mo. J. C. Sommers is the manager.

The Firestone Tire & Rubber Co., of Akron, Ohio, has opened a branch in Dallas, Texas, at 1521 Commerce street. It will be under the management of P. P. Talbot.

The Kennebec Garage has "opened up" in Portland, Me., at 199 Kennebec street, with I. P. Holman as manager. The sale of used cars will be made a feature of the business.

The Fisk Company of Texas, which has its headquarters at San Antonio, has opened a branch at the corner of Young and Ervay streets, Dallas. E. H. Peck is manager of the branch.

The E. E. Graber Co., which was composed of Elmer Graber and Sayer Miles, and which conducted a garage in Newton, Ia., has changed hands. Ora Woody is the new owner.

The Warner Garage is the style of a new establishment that has been opened at Amsterdam, N. Y., with Jesse Seward as manager. Stoddard-Dayton and White cars are handled.

The firm of Mirrion & Castle, Amsterdam, N. Y., has been dissolved and the business henceforth will be conducted by W. J. Mirrion and T. J. Franconer. Marmon and Ford cars and Michelin tires are being handled.

The Hupp Corporation has opened a branch in Atlanta, Ga., with temporary headquarters at 203 Peachtree street. Permanent quarters are in course of construction at the corner of Peachtree and North avenues.

The Ferromatic Tire & Mfg. Co. is the style of a spring wheel concern which has opened general sales offices at 1745 Euclid avenue, Cleveland, Ohio. C. F. Wren is

the inventor of the tire and president of the company.

J. W. Brooks and C. L. Norton have formed the Brooks-Norton Motor Sales Co., in Cleveland, for the purpose of handling Ohio electrics and one or two lines of motor trucks. They are located at 1917 Euclid avenue.

The C. & F. Motor Car Co., which recently was organized in San Francisco, Cal., to handle Stutz cars, has opened salesrooms at 436 Van Ness avenue. Albert Cosby and J. A. Chanslor are the partners in the enterprise.

The Goodyear Tire & Rubber Co. has opened a branch in Spokane, Wash., at 1107 First avenue, which will cover the territory in the Cascades in Washington, Oregon, Idaho and Montana; it is under the management of C. D. Clement.

Frank W. Philips has resigned as manager of the Chisholm-Philips Automobilia Co., of Cleveland, Ohio. He will devote his time to an eastern body-building plant in which he is interested, but will continue to make his home in Cleveland.

Charles E. Riess & Co. have moved into their new commodious quarters on Broadway, corner Sixty-third street, New York City, where they have a floor space of more than 20,000 square feet. They handle the American and Marion lines.

J. W. Newsom, who conducts a tire repair business at 4148 Olive street, St. Louis, Mo., and F. S. Seever, of the Auto Marine Supply Co., of the same address, have formed the Newsom-Seever Supply & Tire Co. They will continue business on Olive street.

George Ostendorf, formerly manager of the Franklin Automobile Co.'s branch in Buffalo, has purchased the establishment and hereafter will conduct the business on a dealership basis under his own name. Ostendorf will retain the present location at 683 Main street.

The Milwaukee Auto Specialty Co. has purchased a large piece of property at Seventh and Chestnut streets, Milwaukee, Wis., on which to erect a garage, repair shop and service building. The structure will be 150 x 110 feet, five stories high, of concrete and steel.

The Columbia Garage, which heretofore has been operated as a garage and livery only, with headquarters at 355 West Madison street, Chicago, Ill., has taken on the sale of pleasure cars and opened a service department and salesroom at 1615 Michigan avenue. Velie cars will be handled.

H. J. Twelvetree, formerly manager of

the Cleveland branch of the Thomas B. Jeffery Co., has purchased the interest of Frank Sealand in the Weaver-Sealand Motor Co. and become vice-president of the concern. Sealand goes to Detroit to become manager of the Winton branch there.

The H. G. Hawkins Co., representative for Baker electrics in Spokane, Wash., has found its quarters at 508 Second avenue too small and taken more commodious rooms at 818 Fourth avenue. The H. G. Hawkins Co. formerly did business under the style of Washington Motor Vehicle Co.

J. M. Wolf and Emil Bolina, of Albert Lea, Minn., and Peter G. Hammel, of Beaver Dam, Wis., have formed the Fairmont Motor Co., and are building a garage in the Minnesota town of that name. The building will be 110 x 52 feet, and will contain salesrooms, an accessory department, and a garage and repair shop.

John F. Shuford, E. J. Ryan and F. Schmit have purchased the business of the Continental Motor Equipment Co., 5887 Delmar boulevard, St. Louis, Mo., changed the name to Continental Equipment Co. and have established headquarters at 3124 Locust street. The Delmar boulevard store will be continued as a branch.

The Wishart-Dayton Auto Truck Co., which recently was incorporated in New York with \$25,000 capital, has opened for business at 501 Fifth avenue, New York City. The company, of which the wealthy George Wishart is president and his son Spencer, the well-known racing driver, is secretary, will handle Dayton and Barker trucks.

J. S. Patterson has purchased the interest of the Jackson Hardware Co. in the Jackson & Patterson Garage, on South street, Lafayette, Ind., and will continue the latter in his own name. The Jackson Hardware Co. has opened automobile salesrooms at the corner of Third and South streets, where Frank Jackson will be in charge.

Recent Losses by Fire.

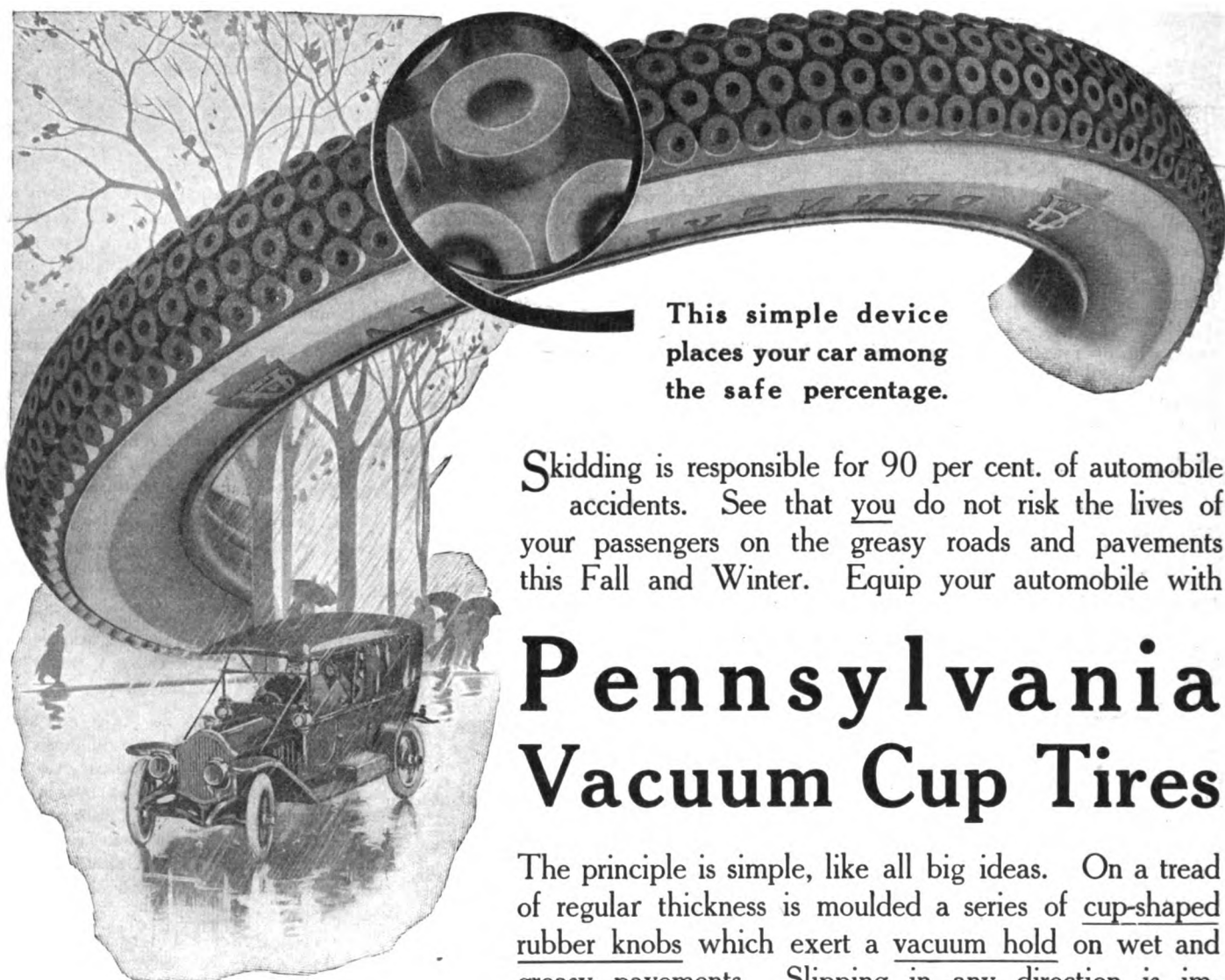
Abilene, Texas.—K. P. L. Auto Co. damaged. Loss, \$3,000.

Glasco, Kans.—Davidson Garage and 10 automobiles burned.

Jamestown, Kans.—Wilcox Garage and the Fitzgerald & Hill Garage destroyed.

Canton, Ohio.—Republic Stamping & Enameling Co.'s garage and two cars destroyed. Loss, \$7,000.

Savannah, Ga.—Ford Automobile Agency's garage, 221 East Broughton street; five cars burned. Loss, \$4,000.



This simple device
places your car among
the safe percentage.

Skidding is responsible for 90 per cent. of automobile accidents. See that you do not risk the lives of your passengers on the greasy roads and pavements this Fall and Winter. Equip your automobile with

Pennsylvania Vacuum Cup Tires

The principle is simple, like all big ideas. On a tread of regular thickness is moulded a series of cup-shaped rubber knobs which exert a vacuum hold on wet and greasy pavements. Slipping in any direction is im-

possible. The rolling of the wheel releases each cup automatically by raising one side first, so that forward speed is not retarded.

In snow and mud the knobs sink in and provide a better hold and better "traction" than any other form of non-skid.

Longer Service is a strong feature of Pennsylvania Vacuum Cup Tires. Even when the rubber knobs wear down, the tire is still as good for service as a smooth tread tire of regular thickness.

You combine the essential qualities of Safety and Economy by using these non-skid and long wearing tires.

SOLD BY THE BEST DEALERS EVERYWHERE

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Minneapolis, 917 First Ave. S.

Pennsylvania Rubber Co. of New York
New York City, 1700 Broadway

Pennsylvania Rubber Co. of California
San Francisco, 512-14 Mission St.

Los Angeles, 930 So. Main St.





PUBLISHED EVERY THURSDAY BY

The Motor World Publishing Co.

154 NASSAU STREET, NEW YORK, N. Y.

A. B. SWETLAND.....President

F. V. CLARK.....Secretary-Treasurer

R. G. BETTS.....Managing Editor

TELEPHONE 2652 BEEKMAN

Subscription, Per Annum (Postage Paid) . \$2.00

Single Copies (Postage Paid) . . . 10 Cents

Foreign and Canadian Subscriptions . . . \$3.00

Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions, but not for advertisements. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

General Agents: The American News Co., New York City, and its branches.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

To Facilitate Matters All Communications Should Be Addressed to P. O. Box 649.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, DECEMBER 14, 1911.

Faith and the Three-Wheel Vehicle.

Doubtless not even the failure last week of the most conspicuous recent advocate and manufacturer of three-wheel motor vehicles will serve to diminish interest in that type. Since 1769, when Captain Cugnot produced his freakish three-wheel steam artillery carriage, the effort to produce and popularize a vehicle of the sort has been continuous if intermittent, if such a paradox may be employed.

The whole history of self-propelled and man-propelled vehicles, both ancient and modern, is studded with such examples, which in every instance have met with failure. When Daimler first applied a gas engine to a road vehicle, he applied it to what looked like a bicycle and what by courtesy was termed a bicycle, but which to all intents and purposes was a three-track and therefore substantially a three-wheel vehicle. Benz's first vehicle was a three-wheeler; so, too, was the first popular-priced motor vehicle to be produced in America.

At this latter period and before the automobile, as now understood, attained real prominence, the motor tricycle was in considerable use, both here and abroad; indeed, all of the earliest motorcycles were tricycles; the motor bicycle was considered

an impossibility. In the early days of the pedal propelled bicycle—the high bicycle—the tricycle was prominent; it held the element of personal safety which element was foreign to the nature of the bicycles of those days. But the tricycle perished—perished miserably. Here and there there may be a two-passenger motor tricycle or a three-wheel "motorette" or "delivery car" running around, but they are few and far between.

No three-wheel vehicle ever produced ever attained real popularity or maintained headway in the sense of usage. It is not conceivable that any that may come after will share a better fate. It is essentially a restricted smooth-road vehicle; away from such roads it is, in any form, a "man-killer;" it is only the near-superhuman who can endure the toil and racking that it entails. In America, least of all, can it become a practicable vehicle. Our roads are not adapted to the use of three-track vehicles. The surfaces, the ruts, the side-paths of our highways permit only the use of single-track and two-track conveyances. The bicycle quickly swept out the tricycle and the three-wheel automobile never had even a ghost of a chance to prevail against a four-wheel, two-track vehicle of any sort.

The history of three-wheelers is one unending succession of failures. It is possible to paint glowing and attractive pictures of their possibilities—the manufacturer who failed last week was deluged with inquiries—but possibilities will not stand against facts—against history. The wonder is that at this late day, and in the light of comparatively recent experiences, men can be found to devote their time, their energy, their capital to the production and popularization of three-wheelers. Their faith is admirable, their judgment beyond understanding.

Two Sides of the Service Problem.

"Service" has become a word to conjure with in the automobile trade. It is full of meaning and too freely used it undoubtedly conveys more meaning to prospective purchasers than always is desirable. This is particularly true as applying to motor trucks. The salesman almost lovingly hangs onto the word. Not infrequently he talks more of "service" than he talks of trucks, which in its way is well enough. But he seldom goes far enough. He talks chiefly of the service the truck or its manufacturer will render, and too often

commits the latter to practices or performances that are unreasonable, and that serve merely to breed dissatisfaction.

The years spent in bringing the vehicle to a state of development where it would give satisfactory results, the many early failures and the dissatisfied purchasers of bygone days have all impressed the manufacturer with a deep sense of his own responsibility, and he shoulders the burdens as a matter of course. But so immersed is the salesman in making sales that he forgets that there are responsibilities that devolve upon the user—certain burdens that the purchaser must assume if the truck is to do all it is capable of doing. Too often—indeed, in most instances—the salesman fails to press home this, the other side of the transaction, lest it make an unfavorable impression on his "prospect." And the "prospect," on his part, rarely gives the matter the consideration it merits.

The truth of the matter is that once a vehicle is sold it is just as important that the user give it the right kind of treatment as it is that the builder should have done his work well. He should feel it obligatory to follow the directions given for the care of the mechanism, or else take upon his own shoulders the responsibility for the failure of the truck to give expected results. He should load it with the loads it was built to carry, make adjustments promptly and intelligently, use supplies recommended by the builder and, if anything needs to be done, see that it is done promptly, so that the truck shall not be operated while in a condition to be injured by running; and he should at once notify the agent of the existence of trouble beyond his ability to remedy. Moreover, the user should be perfectly frank in discussing with the agent all matters pertaining to the use of the car, giving all possible information, even if by so doing he reflects adversely upon his own judgment or that of his employees.

Unquestionably both buyer and seller should attach more importance than they usually do to the fact that there are two sides and two sets of responsibilities connected with every transaction, and that after the truck has been sold the user has obligations to fulfill that are quite as important as those of the agent. And it is only by the intelligent and conscientious carrying out of obligations on both sides that the motor truck can be made to render the best service of which it is capable.



St. Louis, Mo.—Electric Motor Car Co., under Missouri laws, with \$10,000 capital; to deal in electric motor vehicles.

Springfield, Ill.—Flexo-Motor Co., under Illinois laws, with \$30,000 capital. Corporators—F. C. Miller, W. Wishart, H. L. Smith.

Detroit, Mich.—Briggs-Detroit Co., under Michigan laws, with \$200,150 capital. Corporators—John A. Boyle, Claude S. Briggs.

Chicago, Ill.—La Salle Auto Oil Co., under Illinois laws, with \$25,000 capital. Corporators—W. R. Watson, G. W. Curtis, L. E. Powell.

Decatur, Ill.—North Main Street Garage Co., under Illinois laws, with \$10,000 capital. Corporators—G. G. Council, E. R. Leggett, C. T. Council.

Chicago, Ill.—S. K. F. Ball Bearing Co., a New York corporation, admitted to deal in ball bearings in the State of Illinois. Illinois capital, \$50,000.

Columbus, Ohio—Auto Accessories Manufacturing Co., under Ohio laws, with \$10,000 capital; to deal in automobile supplies. Corporators—W. S. Paxon, et al.

Chicago, Ill.—Selden Motor Vehicle Co., a New York corporation, admitted to do business in the State of Illinois. Illinois capital, \$500,000. Corporator—W. A. Albaugh.

Los Angeles, Cal.—Beverly Automobile Co., under California laws, with \$10,000 capital; to deal in automobiles. Corporators—John Wright, Fred L. Moses, Charles H. Pool.

Selma, Ala.—Central Alabama Motor Car Co., under Alabama laws, with \$1,500 capital; to deal in automobiles. Corporators—George H. Auburn, H. A. Vaughn, G. G. Vaughn.

Racine, Wis.—The Racine Rubber Co., under Wisconsin laws, with \$10,000 capital; to deal in rubber goods. Corporators—Martin J. Gilen, Milton J. Knoblock, Mary E. Linn.

Toledo, Ohio—The Royal Auto Co., under Ohio laws, with \$10,000 capital; to deal in motor vehicles. Corporators—Marion M. Kennedy, E. B. Parker, B. C. Christen, E. J. Heiss.

Augusta, Maine—B. F. Moffat Punctureless Tire Co., under Maine laws, with \$2,500,000 capital. To manufacture and sell punctureless tires. President and treasurer, E. M. Leavitt.

Philadelphia, Pa.—The Tire Shop, Inc., under Delaware laws, with \$25,000 capital. Corporators—J. A. Fischer, Philadelphia,

Pa.; J. G. Hughes, Haddenfield, N. J.; H. W. Davis, Wilmington, Del.

Greenville, S. C.—The Marathon Car Co., of South Carolina, under South Carolina laws, with \$10,000 capital; to manufacture and deal in automobiles. Corporators—C. W. Ellis, H. D. Caldwell.

Chicago, Ill.—The Motor Bus Co., under Illinois laws, with \$60,000 capital; to maintain and operate motor buses and trucks. Corporators—Clarence E. Morris, James E. Hauronic, Frank P. Page.

Marshalltown, Iowa—The Eldridge-Beebe Auto Co., under Iowa laws, with \$10,000 capital; to deal in automobiles and other motor vehicles. Corporators—Charles C. Eldridge, Edwin J. Beebe.

Cincinnati, Ohio—Auto Accessories Manufacturing Co., under Ohio laws, with \$15,000 capital. Corporators—S. C. Roettinger, H. L. Habekotte, W. S. Paxon, Henry E. Beebe, William Stichtooth.

Rahway, N. J.—Acme Body Co., under New Jersey laws, with \$100,000 capital; to manufacture automobile, carriage and wagon bodies. Corporators—H. A. Grube, F. P. Gallagher, G. L. Freeman.

Ft. Wayne, Ind.—Merchants' Motor Delivery Co., under Indiana laws, with \$25,000 capital; to transport merchandise in motor vehicles. Corporators—A. W. Harris, William Hahn, A. H. Fernwalf.

Detroit, Mich.—Detroit Tube Products Co., under Michigan laws, with \$40,000 capital; to deal in motor vehicles. Corporators—A. Chester Jones, Henry E. Bellaimey, Frederick W. McClyellon.

Fairmont, Minn.—Fairmont Motor Co., under Minnesota laws, with \$15,000 capital; to deal in automobiles and other motor vehicles. Corporators—John M. Wolf, Emil C. Belina, P. G. Hammer.

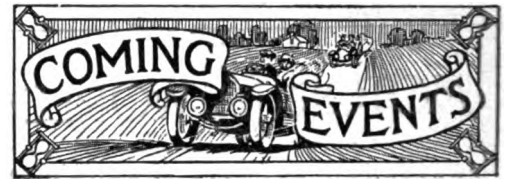
Redmond, Wash.—Redmond-Kirkland Auto Stage Co., under Washington laws, with \$3,000 capital; to maintain and operate motor buses. Corporators—A. N. Brown, Charles Brown, William Brown.

Buffalo, N. Y.—Buffalo Motor Vehicle Service Co., under New York laws, with \$100,000 capital; to manufacture, repair and deal in motor vehicles. Corporators—W. R. Huntley, J. H. Vail, C. R. Huntley.

Hartford, Conn.—The Knight Garage, under Connecticut laws, with \$15,000 capital; to deal in automobiles and maintain a garage. Corporators—Harry T. Hotchkiss, George E. Tester, Pierrepont B. Foster.

Camden, N. J.—The Little Giant Motor Car Co., under New Jersey laws, with \$125,000 capital; to manufacture and deal in automobiles. Corporators—W. C. Davis, D. Cooney, A. H. Holl, A. E. Simmons.

New York City, N. Y.—Batavia Co. of Pennsylvania, under New York laws, with \$30,000 capital; to manufacture and deal in automobile and bicycle tires. Corporators—H. W. Newburger, M. Lustig, both of New York City; D. Weiss, Yonkers, N. Y.



December 20, New York City, N. Y.—Annual banquet of the Automobile Club of America at Waldorf-Astoria.

December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

December 30-January 6, Buffalo, N. Y.—Buffalo Automobile Trade Association's annual show in 74th Regiment Armory.

January 2-10, New York City, N. Y.—Importers' salon at Hotel Astor.

January 6-13, New York City—Automobile Board of Trade's 12th annual show in Madison Square Garden. Pleasure vehicles only.

January 10-13, Peoria, Ill.—Peoria Automobile Club's show in the Coliseum.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual national show in New Grand Central palace. Pleasure and commercial vehicles.

January 13-19, Milwaukee, Wis.—Milwaukee Automobile Dealers' Association's annual show in Auditorium.

January 13-27, Philadelphia, Pa.—Philadelphia Automobile Trade Association's annual show in First and Third Regiment Armories.

January 15-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden. Commercial vehicles only.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

January 22-27, Providence, R. I.—Rhode Island Licensed Automobile Dealers' Association's show in the State Armory.

January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association's annual show at Wayne Garden.

January 27-February 3, Pittsburgh, Pa.—Automobile Dealers' Association of Pittsburgh, Inc., sixth annual show of pleasure cars.

February 3-10, Montreal, Can.—Automobile Club of Canada's annual show at Drill Hall.

February 5-10, Pittsburgh, Pa.—Automobile Dealers' Association of Pittsburgh, Inc., sixth annual show of commercial vehicles.

February 5-17, St. Louis, Mo.—Annual show in the Coliseum.

February 12-17, Ottawa, Can.—Ottawa Valley Motor Car Association's first annual show.

February 12-17, Kansas City, Mo.—Motor Car Trades' Association's show in Convention Hall.

WHAT IMPRESSED THE ENGINEERS

Returning S. A. E. Members Talk of What They Saw Abroad—Clarkson and Coffin Find Interesting Comparisons.

Of the 60-odd members of the Society of Automobile Engineers who sailed away from New York on November 1st to make their first official visit to the British body of kindred spirits, the Institution of Automobile Engineers, some 45 returned on Thursday last, 7th inst. aboard the White Star liner Olympic. Though they saw much that was interesting during their visits to the manufacturing plants of the more prominent foreign automobile and parts manufacturers, there were those who were not sorry to be back home again, for aside from its educational value the trip was strenuous to say the least. For the entire time they were abroad, their time was taken up by a continual round of sight-seeing and banqueting; not even Sundays were days of rest.

Some of those who did not return with the party on the Olympic remained abroad for a more leisurely examination into manufacturing methods, and others had returned previously. Among the more prominent men who made up the returning party were: Howard E. Coffin, vice-president of the Hudson Motor Car Co.; William E. Metzger of the Metzger Motor Car Co.; Coker F. Clarkson, secretary of the Society of Automobile Engineers; G. R. Wadsworth of the Peerless Motor Car Co.; Walter C. Baker of the American Ball Bearing Co.; D. G. McDiarmid, superintendent for the C. P. Kimball Co.; W. G. Wall, chief engineer of the National Motor Vehicle Co.; William Kelly, vice-president of the Metzger Motor Car Co.; C. H. Foster, president of the Gabriel Horn Mfg. Co.; J. B. Hull, vice-president of the Perfection Spring Co.; Arthur B. Cummer, of the Autocar Co.; Alden L. McMurtry, of Gray & Davis; F. S. Dusenbergh, assistant manager of the Sears Automobile Co.; H. G. Stutz, of the Stutz Auto Parts Co.; E. A. De Waters, of the Buick Motor Co.; H. B. Bachman, assistant engineer of the Autocar Co.; John G. Wood, general manager of the Empire Motor Car Co.; Bert Morley, of the Kelsey Wheel Co.; C. J. Metzger, sales manager of the Woods Motor Vehicle Co.; B. G. Hayes, of the Hayes Mfg. Co.; Paul L. Snutzell, representing C. F. Splittorf.

That the trip was entirely successful goes without saying. The American automobile engineers were most hospitably and fully welcomed by their British and Continental cousins; joint professional deliberation and inspection of actual working conditions in Europe were had, and as soon as practicable the Institution of Automobile Engineers will send a delega-

tion of its members to America to meet in technical discussion with the Society of Automobile Engineers and to view the methods and workings of American motor car factories. It is improbable, however, that any large party of British engineers will visit America before 1913 as a trip to France has been arranged for next year. The following year, it is understood, the Institution of Automobile Engineers will pay its formal return visit.

That the engineers would hear a lot about the so-called American invasion was to be expected, though the average Briton's alarm at the insidious advance of the American medium-priced car is groundless in the opinion of Howard E. Coffin, for the reason, he states, that the same transition has taken place in this country and worked for the good of motoring; the medium-priced car will stimulate greatly the British interest, and lead to the sale of many larger cars. "Though the production of the medium-priced car in America was croaked to be the death-knell," he says, "these 'death-knells' have proven to be the greatest missionaries ever."

Commenting further on foreign tendency in design, Coffin says:

"I am inclined to think the small bore-long stroke idea is, in some instances, being carried too far. As to whether the use of the wire wheel and worm drive can become popular on American roads, is a question, both from the commercial and engineering standpoints. French makers do not seem to be following the English lead very greatly as yet. Self-starters are not in evidence and there seems to be little, if any, experimental work in this connection. A good many attempts are being made at the hydraulic type of transmission, but all these efforts as yet are in the experimental form. Slide and rotary valve motors are less in evidence than the records of the foreign patent offices would seem to warrant. Very few startling innovations of any kind were to be found in the Olympia show, but the show was extremely interesting from every standpoint."

It is the consensus of opinion that the thing which most impressed the American engineers was the widespread use of the worm gear for final drive. In practically every factory which they visited were found evidences either of its use at present or its intended use in the near future. According to present indications, the number of cars which will be worm-driven next year will be considerably greater than the number so constructed at present. In only one instance was it found that after trial a manufacturer had returned to the use of the bevel drive and in this case, no accurate information regarding the reason for the change could be obtained.

The increasing use of the "silent" type of chain for driving cam shafts, pumps and magnetos, was another feature which was conspicuous, though the trend toward this construction was not as noticeable as

it was in the case of the worm drive. One of the more recent developments in the application of the "silent" chain which steadily is coming into greater prominence is its use for transmission purposes. The London General Omnibus Co. has used chain change gear mechanisms on its fleet of buses for some time, but recently the manufacturers of two pleasure cars, the Maudsley and the Dennis, have adopted similar "gear" boxes, and indications point toward a still more general adoption of chains for this purpose in the near future.

Naturally, much was heard of the various types of non-poppet valve engines which recently have made their appearance and their ready acceptance by the motoring public proved a genuine source of wonder to not a few of the visiting engineers. As opposed to the pioneer in the field, the Knight engine, it was found that there are several other types of sleeve and rotary valve engines which before long bid fair to attain to considerable popularity, though at present they are in more or less experimental forms.

Regarding production methods and the use of automatic machinery, Coker F. Clarkson, secretary of the society, says that it is difficult to generalize. "In some factories," he says, "notably in the case of the Panhard, Renault, Benz and Wolseley, we found excellent examples of work done on full automatic machinery; the jig work was particularly good, and was in every way up to American standards. But in others the inclination toward the use of semi-automatic machinery was just as pronounced. As a rule, the amount of hand work which is done is greater than is the case in America, and greater attention is given the finish of small parts." "It is the lower cost of labor," he explains, "which permits of more manual operation in the manufacture and finish of parts."

In reference to the number of cars produced per man per year, it was found that in several cases the figures closely approximate those which obtain in the large car factories in this country, namely, one car for each two men per year. In another case, the manufacturers of a notable French car claim the production of one car a year for less than each man employed. It is in this same factory that an elaborate system of training apprentices is in vogue, and in this way operators literally grow up with their work.

As to engine starting devices, the movement in favor of which has received such really tremendous impetus in the United States during the past three months, little or nothing has been done abroad. Instead manufacturers appear to be watching and waiting, and according to several of the returned engineers all the information which could be gleaned regarding American practice, was snapped up eagerly. The acetylene starter in particular was of interest, but that little is known of its possibilities abroad is evidenced by the fact

that questions regarding its efficiency and the number of starts which it is possible to obtain from a tank of gas were numerous.

Similarly, standardization has received little attention, and in speaking of this feature, Clarkson says that there is nothing on the surface and apparently nothing below the surface. Some attempt has been made to standardize screw threads, he says, but this is really the only indication of the movement other than that foreign manufacturers have suggested that in the standardization of wheel sizes, metric sizes be used, because of the world-wide character of the tire business.

"One of the really striking things which impressed us collectively," says Clarkson, "was that in both Paris and London anti-skid chains are almost unknown. It is probable that the reason for this is that pavements are largely wood block. Also the number of steel studded tires which are used is considerably greater than is the case in America. As a matter of fact, taxicabs are required by law to be equipped with one steel studded tire in front and one in the rear, and undoubtedly the extensive use of the anti-skid tires has much to do with the absence of tire chains. On the whole, British and continental roads are good, though in this case too, it is hard to generalize for the reason that there are bad roads as well. In France the roads are particularly good, though due to the high crown which is given the majority of them there is a marked tendency to cause skidding."

Another of those who were impressed by what he styles "the great advance made by those contending for 'lilent' motors as opposed to poppet valve engines," was J. B. Hull, of the Perfection Spring Co. He also remarked the great amount of hand work done in the factories.

Of those of the engineers who kept their eyes open for individual parts, rather than for cars in their entirety, Bert Morley of the Kelsey Wheel Co., says that owing to the fact that in England wooden artillery wheels are made of oak or ash, and in France of cypress, they break off short when they do break, whereas American wheels, which are made of hickory, tend rather to splinter. "The strength of the American hickory wheels," he says, "will stand the tests of the wire wheel without trouble."

Hickman Heads Milwaukee Dealers.

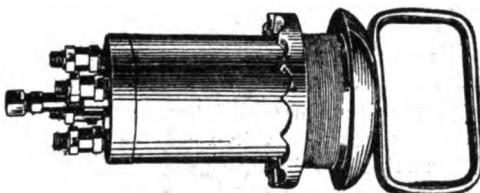
I. G. Hickman will direct the affairs of the Milwaukee (Wis.) Automobile Dealers' Association for another year. He was re-elected president at the annual meeting of the association December 4. The other officers are: Vice-president, Emil Estberg; secretary, A. E. Raffauf; treasurer, August Jonas; directors, I. G. Hickman, August A. Jonas, L. R. Brown, Frank J. Edwards, Emil Estberg, Edgard F. Sanger, A. E. Raffauf.

GANG PUMP TO START THE MOTOR

Prest-O-Lite Self-Starter Utilizes Odd But Simple Mechanism—Automatic Pressure Valve the Principal Feature.

Having acquired an enviable reputation by reason of the general merit of its acetylene gas tanks, it was to be expected that the latest offering of the Prest-O-Lite Co., Indianapolis, Ind., the Prest-O-Starter, would measure up to the high standard which has distinguished its predecessor, the Prest-O-Lite tank; that it has done so, it is almost needless to add. As its designation implies, the new engine starter is of the acetylene type and is quite simple and positive in action. It consists of but four essential parts other than the standard Prest-O-Lite gas tank.

Probably the principal feature of the



THE PREST-O-STARTER PUMP

system is that by means of an automatic pressure reducing valve the pressure in the starter pipes never can exceed two ounces, the probability of leakage thus being minimized. The pressure reducing valve is part of the system and attaches to the standard regulating valve as supplied on all Prest-O-Lite tanks. From the pressure reducing valve, a pipe is led to the gang pump operated by a small handle from the dash or any other convenient location. The word gang pump in this connection is used advisedly for the reason that four or six small pumps, according to the number of cylinders in the engine, are enclosed in the single pump housing and are operated simultaneously, one of them for each cylinder. From each of the tiny pumps a pipe leads to a cylinder where it is connected by means of a special injector nipple which is in effect a miniature check valve.

To operate the starter, the gas having been turned on at the tank, it merely is necessary to pull out the pump handle as far as it will go to admit gas to the small pumps, and then push it in again with a quick motion, when the gas is forced into the cylinders, the ignition spark serving to start the engine. Obviously the number of starts which may be made on a tank of gas depends on the size of the motor, as the starters are made in several sizes to permit the starting of either small or large motors with a single operation of the pump handle. With the motorcycle size of tank, however, it is claimed that 1,200 starts is a fair average and that with the standard

Prest-O-Lite tank a motor may be started at least 6,000 times.

Forged Shafts Are Not Crankshafts.

Following the decision of the Board of Appraisers at New York City, that steel crankshafts are "manufactures of metal" subject to 45 per cent. duty, the Custom House officials classified steel shafts, which had been forged and subsequently turned in a lathe, as "manufactures of metal," the same as crankshafts. On appeal to the Board, however, the duty was reduced to 35 per cent., the shafts being classed at "forgings." The forged steel shafts were imported by the Hewitt Motor Co., and the American Locomotive Automobile Co., and were to be used as crankshafts in trucks.

Pays \$37,000 for "Compressed Air Wheels."

Although nothing previously was known of it, it transpires that the Auto Compressed Air Wheel Co. exists in Chicago, Cal., and that there are those who think well enough of its future to pay \$37,000 for an interest in the company. The men who, according to press dispatches, have paid this sum, are W. H. Rank, of Oakland, Cal., and "a party of Philadelphia and Eastern capitalists." The wheel is the invention of Lucian Gruss, of San Francisco, and with the money just obtained it is stated manufacturing will be commenced at once.

Magdeburg's Much-Mixed Taxicab Service.

Difficulties with the replacement of broken parts, and other problems relating to the much-to-be-desired standardization of taxicabs which is being attempted in this country, do not seem to worry foreign taxicab companies—if one can believe the figures dealing with the taxicabs of Magdeburg, Germany. In this thriving German city there are 20 motor cabs, operated by two companies, comprising no less than eight different makes, including Opel, Adler, Benz, Itala, Renault, Horch, Dürkopp and Windhoff.

S. M. B. to Make Fabric First; Tires Later.

The S. M. B. Rubber Co., which has been incorporated under the laws of New York, with \$150,000 capital stock, will establish a factory in Naugatuck, Conn., and ultimately will engage in the manufacture of automobile tires; for the present, however, it will produce only rubberized fabrics. Albert C. Squares is president of the company, T. F. McCarthy treasurer and general manager, and Harry Boardman, secretary.

Block President of Philadelphia Dealers.

Louis C. Block was elected president of the Philadelphia Automobile Trade Association at the annual meeting held last week in Philadelphia, Pa. The other officers are: Vice-President, William P. Herbert; treasurer, F. W. Eveland; directors, R. M. Cook, H. H. Cole; committee on admissions, W. Wayne Davis, J. C. Bartlett.

FINALITY SUGGESTED BY R. E. OLDS

Considers His "Reo the Fifth" Close to the Ultimate Design—Wherein it Differs from Previous Models.

Changed slightly in appearance and in other respects which are not so apparent, at least to the eye, the latest product of the Reo Motor Car Co., Lansing, Mich., has been styled by its producers "Reo the Fifth." Also it is styled R. E. Olds's "farewell" car, and though the designation is slightly misleading inasmuch as it might be understood to mean that Mr. Olds is making ready to retire from the company, the appellation, it is explained, is merely by way of indicating that in "Reo the Fifth," Olds believes he has reached the ultimate of perfection and

considerably, though none of the changes are radical in their nature. The engine is practically the same as that in former models, cylinders being cast in pairs and measuring four inches bore and $4\frac{1}{2}$ inches stroke. By a slight rearrangement of component parts, the flywheel now is carried about two inches further back to permit of better weight distribution and to effect a reduction in vibration. A new one-piece fan has been added and its method of mounting altered so as to make adjustment of the belt or removal of the fan simpler. Water pipes have been increased in size, as has the radiator, and, adding a distinctive touch, all small parts now are nickel plated. The position of the valves remains the same, the inlet valve being in the cylinder head and the exhaust valve at one side, where it is in a position to be directly cooled by the water where it enters the jackets. The timing gears are of

Both sets of brakes are located on the rear wheels, and only slight changes calculated to improve their uniformity of action have been made. They are of the double-acting wrapping type and are provided with equalizers; brake rods have been replaced by steel cables carried in the side frame members. The springs have been made slightly longer and are semi-elliptic in front and three-quarters-elliptic in the rear. The wheels are equipped with demountable rims shod with $34 \times 3\frac{1}{2}$ inch tires both front and rear.

On the "Reo the Fifth" chassis both four and five-passenger bodies are supplied at the same price, namely \$1,055. In two-passenger torpedo roadster form the price is \$1,000.

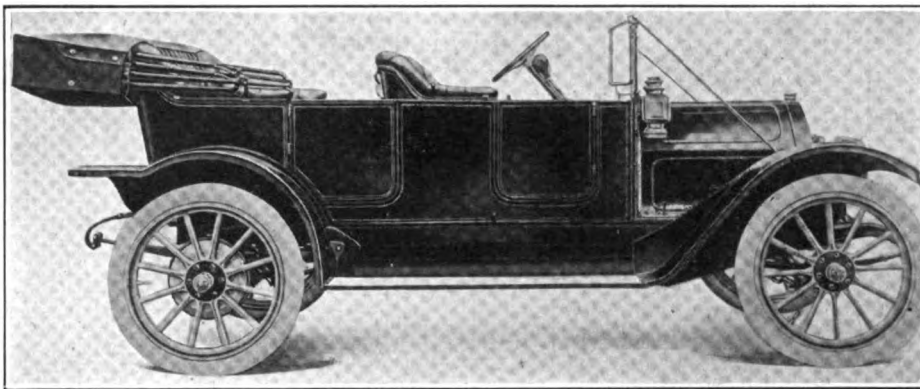
Uncle Sam Strikes at Illegal Practice.

In a decision handed down last week, the Board of United States General Appraisers criticizes the practice, said to be very common, of liquidating an entry where there is a pro forma invoice and a consular invoice, by selecting for assessment the highest value for each item in the two invoices. In this way the Custom House officials have collected excessive amounts from importers, but none of the importers heretofore had taken the trouble to protest this excessive and illegal tax.

The case under consideration was the protest of William A. Brown & Co., who had imported an automobile and accessories on a pro forma invoice and had given a bond for the production of a consular invoice. The Collector subsequently liquidated the entry, assessing the chassis and body of the car for duty at the value given in the consular invoice, and the accessories at the value in the pro forma invoice, and by this method of liquidation reached a sum for the total invoice, which was in excess of the pro forma invoice value, in excess of the appraised value and in excess of the consular invoice value.

"This procedure," says General Appraiser Hay, "is, we think, without authority of law, unjust and hence repugnant to the principles which underlie the law. Where an entry is composed of a number of items, and there is both a pro forma invoice and a consular invoice under circumstances as stated in this case, the Collector must either adopt one or the other, unless there has been an appraisal of the merchandise which differs from one or the other, or both, and then it is his duty to liquidate upon the value found in the last appraisal or reappraisal, if not less than the entered value. He cannot, as he did in this instance, pick out the high value from each and assess duty thereon. . . ."

"The protest is, therefore, sustained for reasons which are manifest from this brief opinion, and the Controller is directed to reliquidate the entry, following in the assessment of duty in that reliquidation the decision of the Court of Customs Appeals in *United States versus Bennett*."



"REO THE FIFTH"—R. E. OLDS'S "ULTIMATE" DESIGN

therefore will retire from the designing field. The car will be manufactured and marketed in years to come but it will remain in its present form except for such slight refinements of detail as experience may dictate.

"Reo the Fifth" is a 30-horsepower touring car and though it incorporates many of the features which have distinguished its predecessors, it has undergone such re-designing in process of evolution that it is practically a new car. Its change in appearance is due to the fact that the wheel-base has been lengthened from 108 to 112 inches and the single control lever has been placed in the center of the footboard, giving right hand control with the steering wheel at the left side. The emergency brake lever has been eliminated entirely, its place being taken by a pedal; the service brakes are interconnected with the clutch pedal. As regards the body, it presents a conservative straight-line effect in which door latches and hinges are concealed and all other protuberances which might tend to mar the smooth exterior have been subdued. The price of the car with the usual touring car equipment is \$1,055, such additional items as top with side curtains, windshield, speedometer and gas tank being furnished at an extra cost of \$100.

Mechanically, the car has been changed

the helical type and are lubricated from the crankcase. The main engine bearings and the cylinders are lubricated by splash. Ignition is by high tension magneto, with a dry cell and coil system as auxiliary.

In common with many of the other parts of the transmission system, the clutch has undergone a general refinement and though it still is of the multiple disk type, in its new form the alternate disks are bronze and steel. The change gear mechanism provides three speeds forward and reverse, and is selectively operated, one of its distinctive features being that the radius of movement of the control lever is only three inches. In general construction the mechanism is similar to that used in previous Reos, except that the countershaft now is carried on Hyatt high duty roller bearings and the drive shaft is mounted in Timken bearings. Though the rear axle is of entirely new design, its principal point of difference from previous models is embraced in the use of better materials. The axle shafts are made of nickel steel and are of the semi-floating type. The differential mechanism has been made heavier and stronger and now embraces four pinions instead of three; the driving pinion is made integral with its shaft to eliminate the possibility of its becoming loosened.

MAGNETOS OR ENGINE STARTERS?

"Arrival" of Self-Starter Gives Makers of Low-Priced Cars an Embarrassing Choice—Unlooked-for Situation.

"Astounding though it may appear, the automatic engine starter, which so suddenly has attained high favor, is likely to have a direct and unlooked for influence on the use of magnetos, at least in the lower priced cars," was the rather startling declaration of an engineer who has delved deep into the mysteries of motor starters and who just has returned from a visit to a number of the important automobile factories in the country.

"Every car manufacturer who already has not adopted a self-starter, is on the hunt for one. But the available starters made at prices that permit their use on low-priced cars are of types calling for the use of a spark to ignite gas in the motor cylinders; and, as everyone knows, a magneto in a state of quiescence is of no use whatever as a spark producer. In order to retain the magneto, the car maker must either add a battery and its accessories to his ignition system, or use a more expensive type of starting device. Either course will entail an added outlay that will be serious, and so there is but one course open, apparently—to do away with the magneto and substitute a battery system for the ignition and starter. It looks just now as if this very thing would happen, and that before very long. In fact one manufacturer already has made the move, and I know several others who are considering it with wrinkled brows. It is one of the most unlooked for situations that have developed in a long time and that apparently was unthought of until the self-starter really 'arrived.'"

How Germany and United States Compare.

According to official statistics published by the German government, and relating to the automobile industry, there were, in 1909, no less than 19,000 persons employed in 121 factories engaged in the making of automobiles, which 19,000 employees received during that year \$6,250,000 in salaries and wages. The value of the raw material reached \$10,000,000, and was used in making 8,808 passenger automobiles, 636 motor trucks, 3,703 motorcycles and 286 motor boats, with a total value of \$34,850,000. Of this total production, 77.7 per cent. was consumed in the country and 22.3 per cent. was exported. The export figures amounted to \$8,000,000. In 1901 there were in Germany but 12 manufacturers producing motor cars, motorcycles and motor-boats, employing 1,733 persons whose combined wages amounted to barely \$550,000.

The German figures serve to accentuate the bigness of the industry in this country.

For, according to the United States census of 1909, there were in actual operation here 743 factories in which automobiles, bodies and parts were turned out, employing 84,754 persons and paying them \$58,173,000 in salaries and wages. Of the 743 manufacturers, 316 produced complete cars, their output comprising 127,289 cars valued at \$164,216,000.

"Marine Windows" in Alco Limousines.

Giving evidence of the infinite pains at which the American Locomotive Co., of Providence, R. I., has been to make its product not only the acme of comfort but the incarnation of beauty as well, small oval windows have been incorporated as an exclusive and distinctive feature of its limousine bodies. Indeed, the two windows which are in addition to the large rectangular one in the center are so sug-



gestive of things nautical that they have been styled "marine" windows. From a strictly esthetic point of view, their value lies in the fact that they tend to relieve the monotony in the lines of the body. Their real worth, however, is much more material, inasmuch as they permit the chauffeur a less obstructed view to the rear than is possible otherwise. The windows are of heavy plate glass, beveled, and in accordance with the usual Alco specifications are draped with curtains to match the upholstery and carpet of the bodies.

Holland Establishes a Patent Office.

On and after January 1, 1912, citizens of Holland will be allowed to patent their inventions and discoveries by letters of patent issued in their own country—something they cannot do at present. A patent office modeled upon the lines of the English, German and French offices is being established at present, and will be ready for business by New Year's Day. The patent law of the Netherlands grants to all foreign patentees, or owners of patents issued by foreign nations, twelve months' grace in which to apply for a patent at the Hague, and requires the same rights for citizens or patentees of Holland in other countries.

BAKU TO STAGE AN ALL-MOTOR SHOW

Russian Oil Town Invites Manufacturers from All Countries—Trade and Road Conditions in the Caucasus.

According to advices from American Vice-Consul Frederick W. Cauldwell, stationed at Batum, Russia, an international exhibition of internal combustion motors, electric motors and automobiles will be held at Baku, the famous oil town and seaport on the Caspian Sea, from April 15 to May 28, 1912. It will be held under the auspices of the Baku branch of the Imperial Russian Technical Society and will be open to exhibitors from all countries, and it is for their benefit that the show will be extended over the unusual period of six weeks.

For the purpose of attracting foreign exhibitors to this out-of-the-way seaport the transportation tariff on the Russian and other continental railroads will be lowered, while all exhibits addressed to the exposition committee will be allowed to pass through the Russian customs free of duty. Despite this abolishing of the high duties, goods exhibited at Baku will be for sale during the time of the show. The receiving of goods at the exhibition commenced yesterday, December 13, and will continue until February 13, 1912.

In its bulletin the organization promoting the show particularly suggests the utilitarian value of light delivery wagons and convertible runabouts.

"Such motor cars," says the bulletin, "would sell for the use of engineers and mechanics who travel to and from the various oil fields. The roads there are pretty good and well laid out for traffic. Unfortunately there is but little room for pleasure automobiles, as scarcely any suitable roads exist between the different towns and villages.

"It is only about two years since the first automobile made its appearance in this region. Now their use has developed so rapidly that there are many garages and numerous cars in use. There are many projects for road making to connect Baku with other towns, and some roads are already in the course of construction.

"At Tiflis the military roads give good opportunities for pleasure travel by automobile as well as for business. In the Transcaspia there are good roads and some of the large towns are connected with automobile services. It is the same in Persia, where the Russian military roads between Enzeli and Teheran and between Julfa and Tabriz are shortly to be opened for public use and where there is no doubt the way of transport will be by automobiles. Commercial cars for carrying three or four tons weight are in use in the Caucasus, Persia, and Transcaspia."

WALTER TRUCK TO BE "GOVERNED"

**New York Maker Adopts Speed Regulator
—Two Motors and Five Chassis Used—
Increased Output in View.**

Though still occupying quarters in West 66th street, the Walter Motor Truck Co., of New York, which has taken over the business of W. Walter, who is now president of the company, is actively preparing to move into its new factory in Broome street, where manufacturing will be carried on under improved conditions.

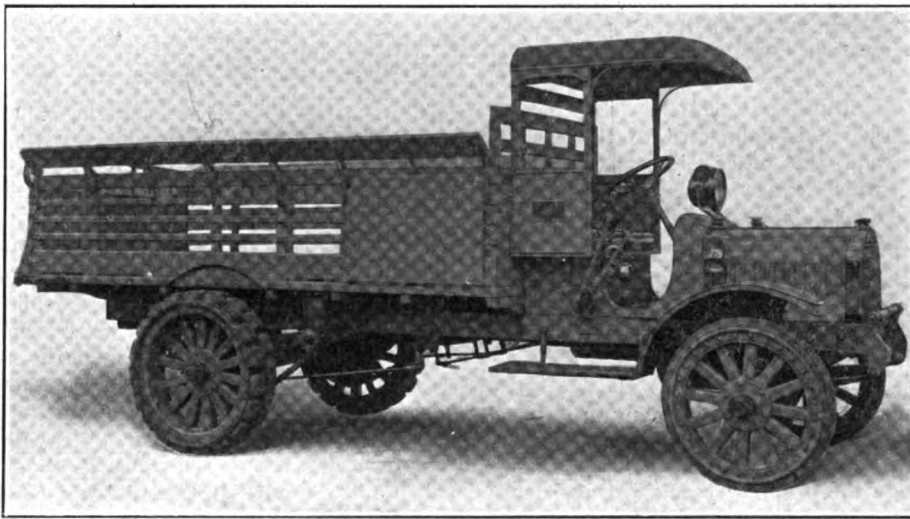
Nothing in the way of startling innovations or radical design is embodied in the

els. Particular attention has been given to the requirements of commercial work in the design and construction of the motors. Valves are made large so as to afford free passage for both incoming and outgoing gases, and all are placed on one side of the pair-cast L-head cylinders, the two exhaust valves being on the outside in each pair of cylinders, with the intake valves between them. This results in a certain amount of heat interchange between the passages, the object being to heat the fresh gas to assist carburation and to reduce the temperature of the exhaust. The cooling of the exhaust is further helped by the fact that the exhaust passages are partly water jacketed. Cooling the exhaust gases has the effect of reducing their pressure, with the result that

Lubrication of the engine is effected by means of an eccentric-driven oil pump with oil feeds to the main bearings and the cylinders.

From the engine power is transmitted through a cone clutch with camels hair facing backed by springs, a three-speed change speed gear of the selectively operated type, housed in a manganese bronze casing suspended from three points, and countershaft and chains to the rear wheels. The bevel gears and differential are housed in a rearward extension of the gear box. Gears and shafts, the makers state, are made large enough to give adequate service in commercial work, and are of vanadium steel, hardened and ground. Particular attention has been given to the brakes, there being two sets, operated in the customary way through a hand lever and a pedal, both acting on the drums on the rear wheels by expansion. No braking strains are applied through the transmission system. Brake adjustments are readily made from the side of the car.

In all the standard Walter trucks the driver's seat is placed behind the motor. Springs are long and easy, and in the later models auxiliary springs have been placed directly over the rear axles, with the object of making the vehicle easy riding whether empty or loaded.



WALTER FIVE-TON TRUCK WITH OPEN BODY

gasolene motor trucks manufactured by this concern, but sound engineering practice and an appreciation on the part of the builders of the purpose of a commercial car are visible throughout the line.

Walter trucks are built in five sizes of 1½, 2, 3, 3½ and 5 tons capacity, respectively. The same general features are carried through the entire line, the differences being only such as are naturally called for by the varying sizes and carrying capacities. In the five-ton truck the motor is of 40 horsepower and of the long stroke type, the bore and stroke being 4½ and 6 inches, respectively, while the four smaller vehicles are driven by motors rated at 30-35 horsepower, with 4 inches bore and 5 inches stroke. In all cases the front wheels are 36 inches in diameter, those on the two smaller cars having 3½ inch tires and on the larger sizes 5 inch tires, all single. The 1½-ton truck has rear wheels of the same diameter as the front, with 5-inch single tires, and the 2-ton, 38-inch rear wheels with 6-inch single tires. The 3-ton car has unusually large rear wheels, 48 inches in diameter, with 6-inch single tires, while the 3½-ton and the 5-ton trucks have 42-inch rear wheels with 5-inch dual tires.

Apart from the differences mentioned, one description will cover the several mod-

els. The efficiency of the motor as a whole is improved. Flanges, cast integral with the cylinders, and removable plates serve to enclose the valve springs and stems, not only subduing the noises of the valve operating mechanism, but keeping out dust.

Recognizing the futility of endeavoring to obtain long life from a commercial vehicle that can be run at excessively high speeds, the makers of the Walter trucks have fitted all models with ball governors acting on the throttles. These can be set to act at any desired speed from 10 to 18 miles per hour, and can be locked when set. This seems to be the only way in which the riotous spirit of the average truck driver can be curbed; with no such check on the car the driver is certain, nine times out of ten, to "hit it up" whenever the combination of good road and no traffic police permit.

The ignition outfit, consisting of a Bosch dual system with high-tension magneto and a battery for starting the motor, has been so arranged that there is no manual adjustment of the spark when running. The battery spark is set late, so that there will be no "kick" when cranking the motor, but the magneto is advanced, giving proper timing for running. A single spark plug is placed over the inlet valve of each cylinder.

Fined for Calling Shop a "Factory."

The strictness of German industrial laws hardly needs any comment at this late date, for it is fairly well known all over the world, but even the well-informed American may be shocked to learn that fine and imprisonment await him who dares call his repair and assembling shop a "factory." However, that is exactly what happened to the owner of a garage and assembling shop in Munich last month. It was shown in the evidence submitted by the public prosecutor that the defendant owned a garage and bicycle store, and that he in the rear of this store made small repairs, occasionally even building or assembling complete bicycles and motorcycles. In order to impart to this enterprise an importance calculated to impress prospective customers, he used stationery with the imprint "Auto & Bicycle Works." The public prosecutor got wind of this "misrepresentation," had him arrested, and the court fined him 100 marks for every individual case in which he advertised or represented himself as "manufacturer." The court also ordered the stationery, sign, etc., destroyed; it furthermore interpreted the law to mean literally, that: "The appellation 'Works' denotes employment of numerous workmen, regularly engaged in turning out considerable quantities of manufactured articles by the aid of several machines and by other than muscular human power. The defendant employed a journeyman and an apprentice, and therefore used the term 'Works' illegally." The fine imposed by the court amounted to several thousand marks.

FLUSH-SIDED BODIES THE FASHION

So Says Body Designer Who Went Abroad to Study Foreign Styles—How France and England Differ.

W. H. Edmond, designer for the H. H. Franklin Mfg. Co., of Syracuse, N. Y., who recently returned from his European trip made for the purpose of studying the development of automobile body design in Germany, France and England, found the flush-sided body predominant.

"It is interesting to note the way the various designers are going at it," he said in recounting his impressions.

"England has led in the development of the flush-sided type and France seems to be the last one in line. This may be due to a small amount of 'pique' because the French designers do not like to admit that they are following any others.

"In Germany everything is flush-sided and the Germans are also carrying the matter of the scuttle front to the extreme. One of the most popular types now seen in Germany has a scuttle to both the front and rear seats, the back of the front seat being developed into a scuttle design. Concerning the matter of placing the control levers inside or outside of the body, there is a wide divergence of opinion, but the practice which obtains to the greatest extent is that of putting the shift gear lever inside the body, the emergency brake lever outside.

"The French designers are all for graceful and consistent design with the body lines developed to give the fullest harmony of outline and balance of proportion. In England, the whole idea seems to be utility and practicability. The Englishman gets the idea that he wants both levers inside and he puts them there and builds the body around them apparently without consideration as to the effect on the body contour.

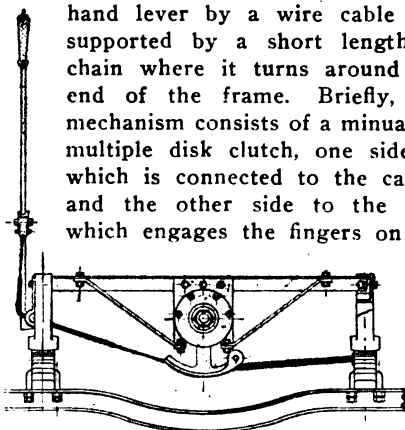
"Every once in a while the sloping type of hood crops out unexpectedly from some old-line designer, and even on the water-cooled cars that still put their radiators at the front of the chassis there is a tendency to slope the hood from the dash down to the radiator; in fact, a great many designers think this sloping type of hood—which is the Franklin type—is the only type, and the more fully this type can be carried out the better the appearance of the car."

Starts Engine Without a Spark.

Despite the intimation which lurks in its name, it is stated that even a child can crank an engine with the help of the Hercules starter, which is one of the recent additions to the already long list of engine starting devices which have made their appearance within a comparatively short space of time. The device is manufact-

ured by the Hercules Auto Starter Co., of 441 Golden Gate avenue, San Francisco, Cal., and in principle is not absolutely new, though in it have been incorporated a number of new features. In its simplest aspect, it is merely a lever attached to the side of the car near the other control levers, its purpose being to permit the "transmission of arm power from the driver's seat" to the crankshaft through the intermediary of a wire cable, a short length of chain and the starter itself which is really the principal part of the arrangement, and which attaches in place of the ordinary crank.

The whole mechanism of the starter is enclosed in a small housing, approximately five inches in diameter, to which is attached a short lever connected to the hand lever by a wire cable and supported by a short length of chain where it turns around the end of the frame. Briefly, the mechanism consists of a miniature multiple disk clutch, one side of which is connected to the casing and the other side to the part which engages the fingers on the



HERCULES LEVER STARTER

end of the crankshaft extension that serve to engage the ordinary crank. It also embraces a sliding sleeve which fits over the end of the crankshaft, and a multiple ratchet movement which serves to make the connection between the casing and the sliding sleeve. In action, the first movement of the hand lever serves to cause the sliding sleeve to move outward so that its fingers engage those in the end of the crankshaft extension. On the next pull, connection with the engine having been made, the crankshaft is rotated and immediately the engine starts the sliding sleeve automatically returns to its former position with its fingers out of contact with those on the crankshaft. The pressure between the friction disks is adjusted so that it is just sufficient to permit the engine to be "turned over." When a backfire occurs, the friction disks slip and the ratchet movement permits the engine to make one or two revolutions backward without disturbing the position of the hand lever.

Heat That Affects the Spark Coil.

Part of the insulation used in high tension spark coils consists of wax, which melts at a temperature of about 125 degrees F. For this reason great care must be taken to keep coils away from heat. The melting of the wax not only results in the loss of insulation, but allows the coils of wire to become loose and short-circuit the coil.

FRENCH MAKER JAILED FOR FRAUD

International Dispute Arises Over Quality of Motor Car—Appeal to French Court Results Disastrously.

That sometimes it is exceedingly dangerous for a manufacturer to substitute inferior material in automobiles guaranteed by him to contain a certain quality of steel, was proven recently when the Court of Cassation, the highest tribunal of appeal in France, sentenced a prominent manufacturer to one month's imprisonment and a fine of 100 francs for fraud. Besides being sent to prison the unscrupulous manufacturer was compelled to refund the 7,000 francs deposit paid on the car, plus interest, and to pay the disappointed purchaser 500 francs as damages.

The case was fought bitterly, and at one time threatened to cause serious complications, as the respective State departments of France and Hungary were appealed to by their subjects. The evidence submitted at the High Court of Hungary, before which the case first was tried, showed that a certain manufacturer, M—, has sold to a citizen of Budapest, K—, two automobiles for pleasure and business purposes, respectively, and had guaranteed the same to be made of a certain quality of steel and to give good work for one year. When the cars arrived at Budapest and were examined, it was found that they did not come up to the guarantee, and the purchaser refused to accept them. Having paid a deposit of 7,000 francs on them, he demanded the return of this money and cancellation of the contract. The Hungarian court upheld him and ordered the French manufacturer to return the money and to take his cars back to where they came from.

The manufacturer, thinking national prejudice had something to do with the judgment of the Hungarian court, appealed to the French ambassador at Vienna, and the wheels of diplomacy were set in motion. By mutual agreement, the matter was submitted to the French Court of Cassation, which is probably the most impartial judicial body in Europe. If, however, the Frenchman thought his own countrymen would exonerate him, he was mistaken, for not only did the court of appeal confirm the judgment of the lower Hungarian court, but it made a criminal case of the attempted fraud, caused the arrest of the manufacturer and sentenced him to imprisonment.

Connecting Carburettors for Winter Use.

When cars are used during the winter it is well to see that their carburettors, if fitted for hot water circulation, are connected up and the water turned on and flowing properly. The extra heat is not usually required in summer and it is quite easy to forget it in winter.

MARION ADOPTS LONG STROKE MOTOR.

**Uses It in New 45-Horsepower Model—
Abandons Disk Clutch in Favor of
Cone—Other Refinements.**

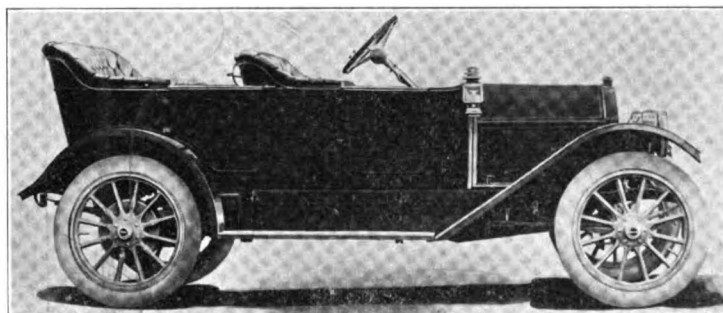
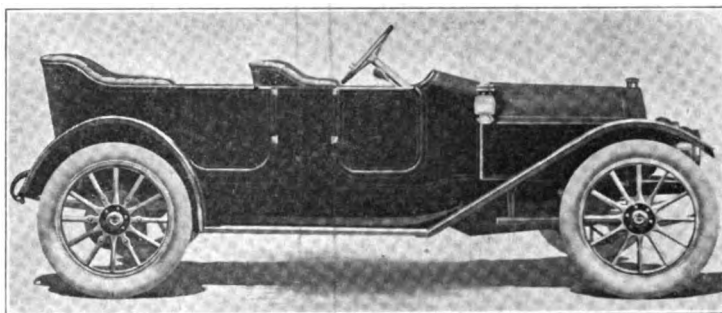
In adopting for the larger cars in the Marion line a new 45-horsepower motor which incorporates a long stroke and other modern engineering practices, the Marion Sales Co., Indianapolis, Ind., has effected also a complete revision of its 40-horsepower chassis to conform to the increase in the size of the motor. As a matter of

sirable noises, have not been relied upon. Instead, the method takes the form of a preventive rather than a remedy and embraces the elimination of every possible source of lost motion or "slap." As valve mechanism in general is a prolific source of noise, it has received an unusual amount of care in design, silence being insured by the use of push rod rollers of a larger diameter than that of the cams, the result being that a dash-pot effect is obtained.

The valves themselves are $2\frac{1}{4}$ inches in diameter and are arranged all on one side, this arrangement permitting the use of but two gears in the timing gear train and these are of the helical type. The valve

size of parts and bearing surfaces. The crank-shaft is $2\frac{1}{4}$ inches in diameter and is supported at the flywheel end in a $4\frac{1}{16}$ -inch bearing; the center bearing is three inches and the connecting rod bearings are $2\frac{1}{2}$ inches long. Lubrication is effected by a constant-level pump-over splash system, the oil being maintained in circulation by a worm driven gear pump. In addition to the high tension magneto ignition system, an auxiliary battery system with dash coil, operating through the same set of plugs, is provided.

Though former Marion cars have been equipped with multiple disk clutches, the cone type will be used exclusively this



THE 45-HORSEPOWER, FIVE-PASSENGER MARION AT \$1,750 AND THE 30-HORSEPOWER MODEL AT \$1,285

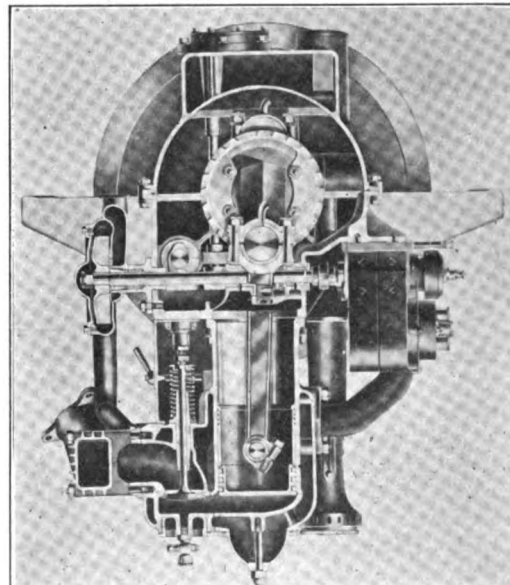
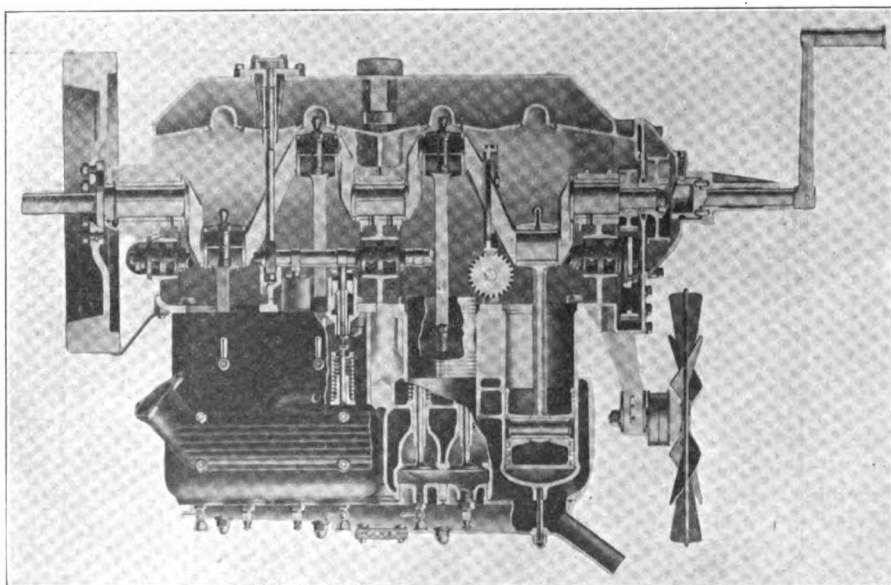
fact, the revision has been so complete that the chassis is substantially a new one, though in it are retained many of the features that have distinguished Marion cars in the past. The new 45-horsepower model and two 30-horsepower cars which employ the same engine constitute the Marion line.

In the construction of the new motor which forms the power plant in models 46, 47 and 48, these being a roadster, a four- and a five-passenger touring car, respectively, particular attention has been given the desirability for silence of operation, though secondary methods of obtaining silence, as indicated by a tendency to enclose all parts and thereby deaden unde-

stems and springs are enclosed by means of a light aluminum cover plate. The high tension magneto and the centrifugal water pump are driven by worm gearing and are located at the extremities of a transverse shaft mounted between the first and second cylinders. The worm which drives the shaft is mounted directly on the crank-shaft.

Cylinders are cast in pairs and measure $4\frac{1}{8}$ inches bore and $5\frac{1}{2}$ inches stroke, and though reciprocating parts have been made exceptionally light, pistons complete with connecting rods weighing approximately eight pounds, the motor is none the less substantial, as is indicated by the liberal

year on all models, construction in each case being practically the same and embracing the use of Thermoid facing and auxiliary springs to insure smooth action. The gear set employed permits three speeds forward and reverse, the changes being obtained selectively by means of the orthodox side lever. Final drive is by shaft to full floating rear axles, the gear ratio at the differential being $3\frac{1}{2}$ to 1. Semi-elliptic springs support the front of the chassis and those in the rear are three-quarter elliptic. Tire sizes are 36 x 4 both front and rear, the distance between wheel centers being 120 inches. Both sets of brakes, service and emergency, are of the internal



END AND SIDE VIEWS SHOWING NEW 45-HORSEPOWER MARION MOTOR PARTLY SECTIONED

expanding type and operate on liberal size drums bolted to the rear wheels.

In roadster, four-passenger or five-passenger touring car form the price for the car is the same, namely \$1,750, and includes as standard equipment the usual complement of lamps, these being black enameled with nickel trimmings, lighting gas tank, horn, tool kit, tire repair outfit, pump and jack. For those who desire greater equipment, a top with boot, a Stewart speedometer and a windshield will be fitted at the factory at an added cost for them all of \$125.

Regarding the two smaller models, the

axle, remaining the same. Tire sizes on model 33 are 32 x 3½; on the model 35 they are 32 x 4 inches. With both models the equipment is the same and includes a Prest-O-Lite tank, horn, tools, tire repair outfit, pump and jack. Model 33, which is intended primarily as a fast runabout, lists at \$1,150, and the price of model 35, which is equipped with a five-passenger, flush-sided, closed front touring body, is \$1,285.

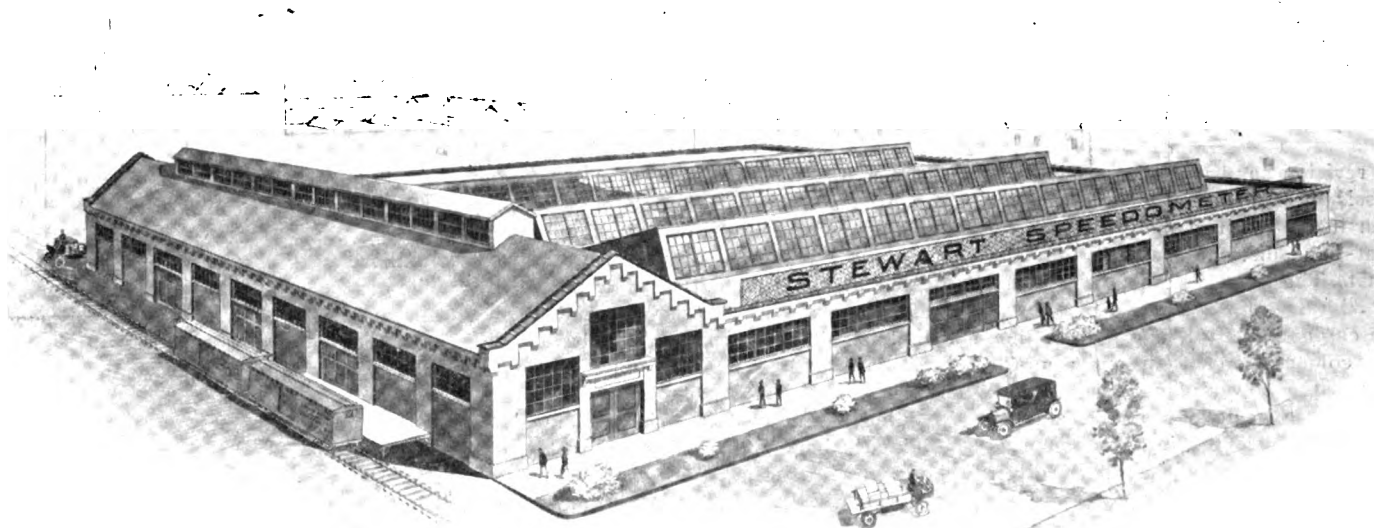
Chicago Supplies Some Truck Statistics.

Due to its not wholly welcome wheel tax, Chicago is one of the few cities that is able to supply authentic statistics bearing on

istered on September 5th, against 17,640 on May 1st. These figures show an astonishing decrease in the number of horse-drawn vehicles during this period, the total decrease being 8,200, while the increase of trucks placed in service was 253.

"Even the most enthusiastic motor truck supporter would not make the claim that these 253 motor trucks were able to entirely displace 8,200 horse teams," says B. A. Gramm, vice-president and general manager of the Gramm Motor Truck Co., of Lima, Ohio, in commenting on the figures. "It would, of course, be an absolute impossibility to accomplish such result, and there

FACTORY DEVOTED EXCLUSIVELY TO THE PRODUCTION OF SPEEDOMETER PARTS



STEWART & CLARK'S NEW PLANT, ERECTED FOR THE MANUFACTURE OF DROP-FORGED SWIVEL JOINTS

changes which have been made are slight, and as the two chassis are identical, saving only that in model 33, which is made only in roadster form, the wheelbase is one inch shorter—111 inches—than in model 35 and that full elliptic springs are used in the rear as against the three-quarter elliptic members that are used in the other model, a description of one suffices for both. The cylinders in each case measure 4 x 4½, bore and stroke, respectively, and are separately cast. Ignition is effected by means of a Splitdorf high tension magneto with a battery system as auxiliary, and lubrication is by constant level sash.

As already has been stated, a cone clutch, Thermoid-faced, has been substituted for the multiple disk member used heretofore, other component parts of the transmission mechanism, such as three-speed selectively operated gear set and semi-floating rear

the several forms of traffic vehicles in use, which figures show that on September 5th last there were exactly 958 motor trucks in use in the western metropolis.

On May 1, 1911, there were registered 436 motor trucks rated at one ton or less, while on September 5th this number had increased to 595, which would be a gain of 36.46 per cent. During this same time the number of one-horse wagons registered had decreased from 40,109 to 34,051, which is a loss of 15.1 per cent. A comparison of the statistics for the larger size vehicles, reveals that the same condition prevails. On May 1st there were 363 trucks registered of a carrying capacity of more than a ton, which number had increased to 457 by September 5th, showing a gain of 25.89 per cent. During this same period the loss sustained in the number of two-horse wagons was 12.14 per cent., there being 15,498 reg-

are other causes for the decrease of the number of horses during the period which may be considered. It is estimated that fully 1,000 of these horses were killed by the heat, and that hundreds of others were laid up at least temporarily. Some of these may be returned to service at a later date again, and thus slightly increase the number of horses registered, but it will make small difference in the total registration."

Minneapolis to Open Municipal Garage.

Finding it too expensive to have its automobiles and motorcycles stored and repaired in private garages, the Minneapolis municipal council has decided to establish its own garage and repair shop. A number of police officers detailed to the wagon barns are good mechanics and will be assigned to regular "garage" duty in the future.

HEAVY TRUCKS FOR FARM SERVICE

Diversified Work Performed in New York Serves as a Good Example—Equal to Three Teams of Horses.

Converted pleasure cars frequently have been employed on farms to perform all kinds of duties usually relegated to horse or manual power, and have proved their value in performing these duties as well or better than could have been accomplished by other means, but, so far as is known, few farmers have ventured to invest in large and powerful motor trucks exclusively for haulage purposes. One of the

During the time of September 1 to December 1, 1911, the truck covered 1,538 miles in its transportation work, using 378 gallons of gasoline and hauling 1,316,620 pounds of freight, or at the rate of four miles to the gallon. The following table gives the total cost of operation.

Gallons gasoline 376 at 12c.....	\$45.12
Time of men handling freight, and driver	225.00
Insurance on truck	24.00
Depreciation at 5 per cent.....	40.00
Oil and grease.....	6.00
Interest on investment at 6 per cent.	48.00
Total	\$388.12

This cost is believed to be excessive, and probably will be reduced during the next similar period of time, for similar work,



PIERCE-ARROW FIVE-TON TRUCK WITH A LOAD OF CABBAGES

first to purchase a vehicle of this kind is Alfred G. Lewis, who owns a 700-acre farm near Geneva, N. Y., and who uses a five-ton worm-driven Pierce-Arrow truck, shown in the accompanying picture. The truck belongs jointly to Alfred G. Lewis and to Mrs. George H. Lewis, who operates a farm of 350 acres, adjoining that of her relative, and in the short space of less than three months has served as an impressive object lesson.

The truck was purchased on September 1, 1911, practically at the end of the season, and has since been used in hauling building materials, fruits, grain, vegetables, hay and feed of all kinds, manure, cord wood, coal, bailed shavings, sheep and cattle to market, milk to the town dairy, etc., accomplishing in regular farm haulage the work of three teams, while in road work to and from Geneva it is said to do as much as five teams. Later in the season it was used for cutting silos, and corn stalks, as well as for plowing and hauling harrows over plowed ground.

because of the fact that a new man who had never driven a motor vehicle had to be taught how to operate the truck. On that account a good deal of the time and mileage was wasted as the truck was not loaded to full capacity until he became proficient.

Summarizing the advantages of a motor truck on the farm, the owner states that "it hauls freight at much less cost than is possible with horses; it saves time; the farm work is better done; crops are put in more promptly and harvest is easier handled."

Water That Remains in Cooling Systems.

It is sometimes disastrous to assume that when water has ceased to drip from the drain-cocks of the cooling system there is no water left in it. Often a little will remain in the low parts of bent pipes, or in the bottoms of cylinder jackets, where it will freeze if the temperature gets low enough, and possibly crack pipes or jackets. Carburettor water jackets should be remembered when draining off water, and also circulating pumps.

HAULAGE ON THE CONTRACT BASIS

Cincinnati Company Organized to Perform Such Service—Its Charges and How They Were Arrived At.

When a business man purchases a motor truck for the transportation of his goods, he does it, not because he wants the truck, but because he wants to get his hauling done as quickly and economically as possible. The machine is merely a means to an end, and in most cases it can safely be said that if the merchant knew of any easier method of accomplishing the desired result he would gladly avail himself of it. If he is purchasing his first truck, he is entering what is to him a new field. He must obtain information and figures through his own experience, for it is a fact that most concerns having accurate and detailed figures as to operating costs, prefer to keep them, while the data that is available is for the most part incomplete or unreliable, or else is not applicable to a particular case.

As a matter of fact, it is practically impossible to figure with any degree of correctness what the cost will be of hauling goods by motor trucks unless the conditions under which the work is to be done are taken into consideration. Road surfaces, grades, traffic delays, loading and unloading conditions, labor, the possibility of overloading and overspeeding, garage and repair facilities—all these and many other factors enter and are liable to completely upset any figures based upon a basis of arbitrary conditions. Even such an intangible thing as an undercurrent of sentiment inimical to power haulage may have the effect of turning the balance against the machines, as has been frequently proved by actual experience.

Yet another set of conditions is arrayed against the merchant who, desiring to learn by experience what results can be obtained from motor trucks in his particular line of business, decides to install a machine or two as a sort of adjunct to his stable. The records of truck manufacturers bristle with failures made under such conditions by vehicles perfectly capable of doing satisfactory work.

Considerations such as these have resulted in the planning of enterprises contemplating the sale of motor truck service rather than the sale of the vehicles themselves. The idea is to work out the cost of operation of the trucks, under average conditions, as accurately as possible, and then, using such figures as a basis, to hire out the machines at such a rate as will be profitable to the service company and economical for the user.

In line with the policy of selling service instead of trucks, a motor drayage service has been organized in Cincinnati, Ohio, by the Cincinnati Service Co. and the Speed-

well Motor Car Co. of Dayton, Ohio, the Speedwell company being the builders of the trucks employed. The machines used are of two sizes, the larger carrying six tons and having a speed of nine miles per hour, and the smaller carrying four tons and making 12 miles per hour. The idea is not wholly new but the fact that before the service was instituted, exhaustive tests were made to arrive at a fair and satisfactory basis of operating costs, makes the resulting figures of more than local value. These are as follows: Depreciation, 20 per cent.; driver's wages, \$3 per day; tire expense and premiums on fire, liability and accident insurance policies, \$522 per annum; upkeep, garage expense, gasoline and oil, \$600 per annum. Allowing for a mileage of 40 miles per day for 304 days in the year, the cost of operation per ton mile comes to about six cents for the four-ton machine and five cents for the six-ton car, and on this basis charges are made, though it is claimed that customers frequently find the price for hauling a given quantity of goods much lower than anticipated.

Trucks are placed ready for work at 7 o'clock each morning, and work regularly nine hours per day. Anything over the nine hours is charged for at one and one-half times the nine-hour rate. Users agree not to load the trucks beyond their rated capacity. Each evening the machines are inspected in their garage and prepared for the work of the following day, so there can be no question as to their fitness for service.

Perhaps the most important factor in the success of such an arrangement is the fact that a considerable number of cars are garaged together. Thus they can be cared for by the minimum number of mechanics, in the shortest possible time and with the least expenditure for a stock of spare parts. Supplies can be purchased in quantities at the best prices and, in short, all the conditions are favorable to economical operation and maintenance.

Pans That Should Be Cleaned.

Though most cars are equipped with under pans, in few is provision made for draining them, and as a rule the accumulation of oil and grease which collects in a short time is considerable and scarcely can be reassuring in view of its inflammable nature. It is well to remove pans occasionally and clean them out thoroughly. When they are replaced a couple of handfuls of clean sand spread in them will do no harm and will serve to absorb a considerable amount of "drippings." Incidentally, the sand will be jarred out a little at a time and will carry with it much of the undesirable accumulation.

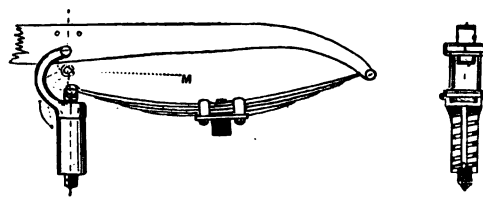
Chlorides for Anti-freezing Solutions.

When making up anti-freezing solutions containing calcium chloride only the commercially pure salt should be used. Free acid in injurious quantities is liberated by

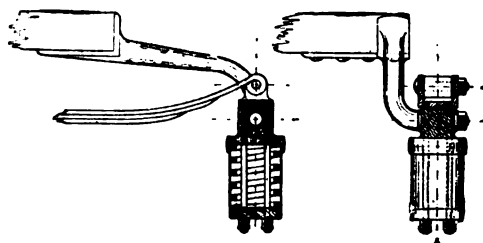
the cruder grades with more or less rapid corrosive effects on the metal of the motor and cooling system according to the strength of the mixture. Chlorate of lime, which has much the same appearance as calcium chloride, is occasionally used by mistake; its corrosive action is swift and strong.

Broad Claim for J. M. Shock Absorber.

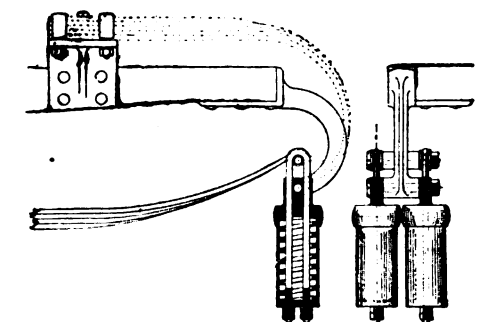
To absorb the greater part of the smaller vibrations which are not absorbed by the ordinary type of leaf spring and also to



relieve the mechanism of a car from heavy rebounds, is the purpose of the "J. M." shock absorber which is marketed by the "J. M." Shock Absorber Co., 210 South 17th street, Philadelphia, Pa. In construction it is essentially an auxiliary spring device, though it differs from others of a similar nature in that the springs themselves are neatly and completely housed and therefore



are dust and dirt proof. Though in effect it is to provide a "springy and elastic" substitute for the ordinary type of solid spring shackle, that its benefits are more manifold than appear on the surface is indicated by the maker's broad claim that on cars fitted with "J. M." shock absorbers solid tires may be used in place of pneumatics without endangering the mechanism of the car and without discomfort to the passengers



Furthermore it is claimed that the device assists materially in keeping down maintenance cost by insuring constant contact between the tires and the road, the result

being that tire depreciation is lessened. The shock absorbers are made in a variety of styles and sizes and may be applied to any car in which the springs are attached by means of shackles, the several types illustrated herewith being applicable to light commercial vehicles as well. For heavier commercial vehicles up to the largest trucks, the manufacturers are prepared to design and supply shock absorbers of special sizes to suit the requirements.

Fake Chauffeur's New Form of Theft.

American and English tourists traveling in their own motor cars on the European continent, during the past few months have been made the victims of a brand new scheme of larceny, and not a few of them have lost, if not their cars and all that was in them, at least the use of these vehicles for extended periods—i. e., until the absconding thief got tired of his plaything, smashed it somewhere or was apprehended by the police. The case of a well-known English author who recently lost his car in this manner is illustrative of the way the scheme is worked. While staying at one of the hotels in one of the smaller continental towns he was approached by a chauffeur in full "regalia," who pretended to have wrecked his employer's car and who desired to go to the nearest large city—the same the Englishman intended to visit next—there to obtain some necessary spare parts.

As is but natural, the Englishman offered him transportation on his own car to his destination. Arriving at the city, the chauffeur overflowed with gratitude and insisted on being permitted to clean and wash the Britisher's car as soon as it had been placed in the garage. Together the owner and the "tramp" chauffeur drove to the garage and there the latter began his self-imposed labors, while the owner hid himself to his hotel. Next morning the car would be a hundred or more miles away, the industrious chauffeur having taken it out at sunrise and vanished. The garage owner, of course, could not be blamed, for, having seen the chauffeur drive the car to the garage with the owner in it, he was justified in believing the chauffeur's assertion that the car was to be taken out at the request of the rightful owner.

Quick Remedy for Broken Valve Spring.

Necessity, the mother of invention, is grandmother to numberless kinks and schemes for saving time and trouble for the motorist on the road. One idea that is really old but will doubtless be new to some, is to insert a washer between the two parts of a broken valve spring, which will prevent them from working into each other and will allow the spring to remain in service until a new one can be put in. The washer must be of such size that the broken spring ends cannot pass it, either through the hole or over the edge; it should be wired in place.

Systems of Transmission; the Friction Drive

Palpable to those whose minds are trained in things mechanical, as it must be to those who are merely observant of the onward march of civilization, the tendency in every field of endeavor is to use the simplest possible means of achieving an end—the means which is not only simple

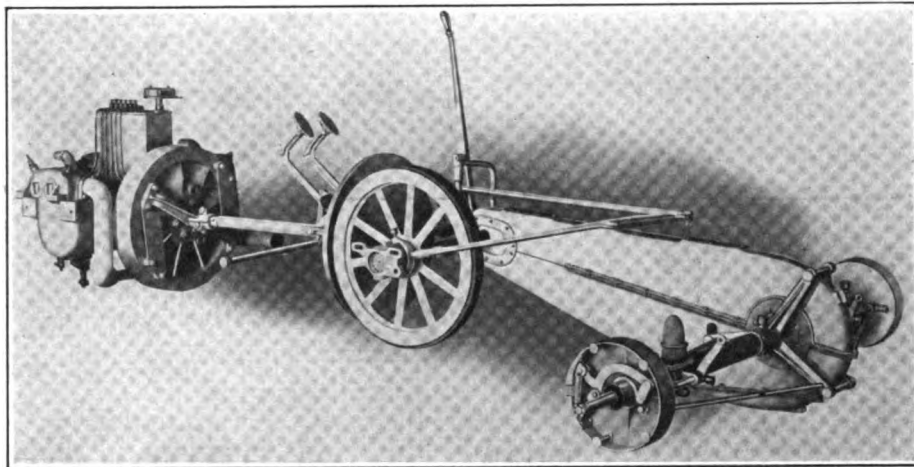
transmission problem still remains to be reached.

In the planetary type of transmission the principal disadvantage of the sliding gear type, embraced in the necessity of meshing two gears rotating at different speeds, is eliminated, but another objection

more general adoption of four speeds ahead.

But there is another form of transmission that is very little used, comparatively speaking, and yet which combines the advantages of delightful simplicity, cheapness of manufacture, low up-keep cost and such ease of operation that no skill at all is required to obtain the best results. It is the friction transmission, and there is just about a baker's dozen of manufacturers in the United States who use it. Of course, all transmissions are friction in principle, the word transmission in this case being used in the broader sense, in which it is correct, and meaning all of the component parts by means of which power is transmitted to the road wheels and motion is imparted to the car. Most clutches are essentially friction devices, and, delving still deeper, the movement of the car is dependent upon the friction between the driving wheels and the road.

The mere word "friction," as applied in this sense, however, is a misnomer insofar as it means "rubbing," and therefore implies that rubbing must take place in order to produce resistance. In reality, the resistance is obtained not only during the rubbing but also before the motion or rubbing takes place. "Resistance of rough-



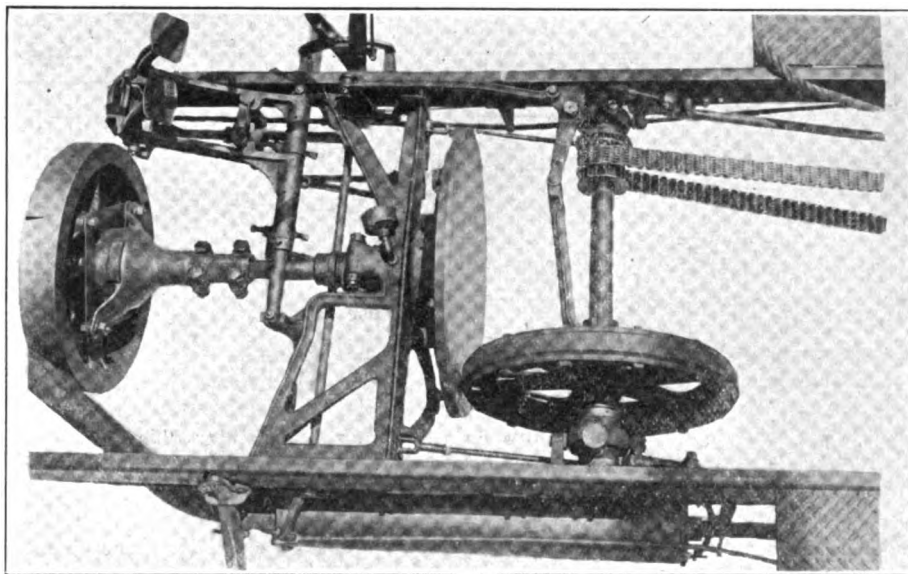
THE CARTER CAR FRICTION DRIVE IN ITS ENTIRETY

but which permits the nearest approach to perfect efficiency that is possible. That this applies in the building of automobiles goes without saying, and in this respect it is doubtful whether a greater amount of study has been given toward the solution of any other problem than that which has to do with the transmission, the word transmission being used in the sense in which it is generally used, though none the less erroneously understood, namely, the change gear mechanism.

Years ago, when the sliding gear transmission first began to be used, manufacturers readily turned to it in the belief that in it they had found the ideal system. Since then the number of applications of the system steadily has increased, and though it is probable that the very fact of its widespread adoption may perhaps have furthered the belief that it really is the ideal system, the fact remains that in every sense, strictly speaking, it is not. Which is to say that it still has the disadvantage that its proper manipulation requires a certain amount of skill, and unless it is handled properly it is likely to entail an inordinately high up-keep cost.

Of course, such systems are better mechanically, structurally and in material than they were several years ago; many of their disadvantages have been eliminated, but the objection that obtained then still obtains in a measure, and there are not a few engineers and others who are of the opinion that a satisfactory solution of the

in the form of excessive weight and size is raised. For light cars, or for very heavy commercial vehicles, there are those who incline to the belief that in it is found the



FRICTION DISK DRIVE AS EXEMPLIFIED IN THE LAMBERT

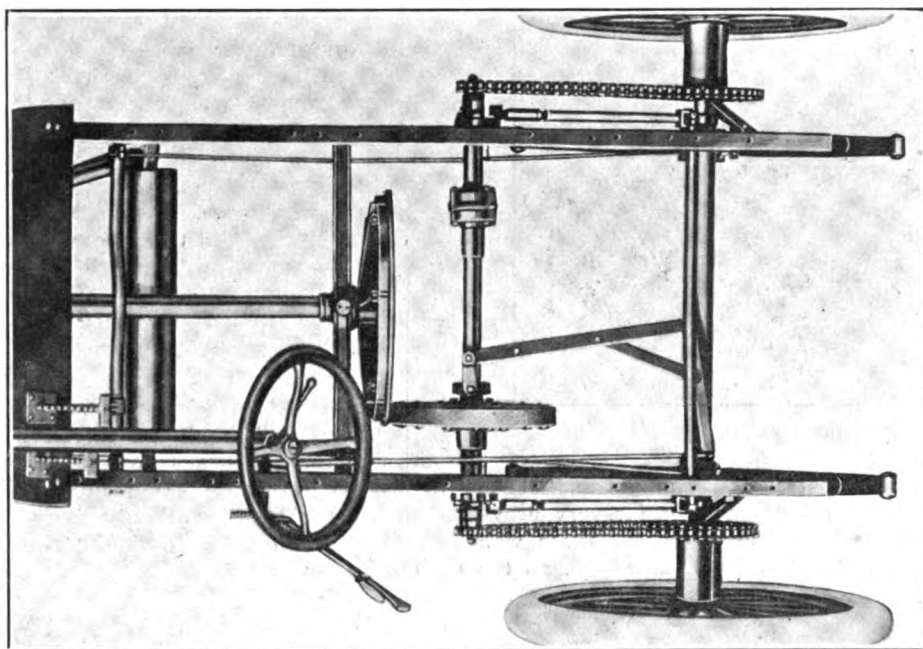
real solution of the problem, and there are any number of instances where it has proven eminently satisfactory for both of these kinds of work. But for the average touring car it scarcely is possible, and this for the reason that at least three speeds forward and reverse must be provided, and the very apparent tendency is toward a

ness," as it is expressed in engineering parlance, perhaps would better express its nature.

Of course, everybody who is even fairly well informed knows what friction is, but it is not irrelevant to state what friction does, by way of refreshing memories that may, perhaps, have become dimmed

through lack of frequent recurrence of the subject. According to Trautwine, "friction always tends to prevent relative motion of the two bodies between which it acts, i. e., motion of one of the two bodies relatively to the other. In doing so, however, it tends equally to cause relative motion between each of these two and a third, or outside, body." Which is to say, that the friction between a belt and the pulley that is driven by it tends to prevent slipping between them. But it also tends to make the belt slip on the driving pulley and sets the driven pulley and its shaft in motion relatively to the bearing in which the shaft revolves. This motion is resisted by the friction between the journal and the bearing, and this friction, in turn, tends

Naturally, there must be a certain amount of slip by reason of the fact that the driving disk imparts a rotary motion to the driven disk, which rotates at right angles to it. And while it has been pointed out with irrefutable logic that slip means wear, the actual amount of wear that really takes place is so small as to be almost negligible. In fact, in strict justice to exponents of the friction disk transmission, it is only fair to say that with ordinary usage, the friction material seldom if ever requires renewal oftener than once a year. When it does require to be replaced, that the renewal can be made almost in the proverbial jiffy and at an outlay that is purely nominal, merely serves to enhance the value of the arrangement.



METZ ARRANGEMENT SHOWING USE OF DOUBLE CHAINS

equally to make the bearing revolve with the journal and to make the belt slip on the driven pulley. The friction between two bodies at rest relatively to each other is styled static friction or friction of rest. That between two bodies in relative motion is kinetic friction or friction of motion.

In the friction transmission (change speed mechanism is the more correct term), the usual arrangement embraces a driving plate or disk, direct connected to the engine by means of a universal joint, and one or more wheels slidably mounted so that it or they may be moved into contact with the driving disk, motion being transmitted to the road wheels usually through the intermediary of a chain or chains. The face of the driving disk is perfectly plain and smooth and the contact rim of the driven wheel which presses against it is faced with paper fiber, this material having proven after continued test to show the highest coefficient of friction, which means literally the least amount of slip or the greatest possible adherence to the smooth surface of the driving plate.

The principal advantage of the friction transmission from the manufacturer's point of view, as well as from the user's, is that its proper manipulation requires no skill. There are no gears which can be stripped or chipped through careless or ignorant handling and almost an infinite number of speeds can be obtained by means of a single lever, which moves only in two directions—backward and forward. Similarly there is no clutch and even the remote possibility of clutch trouble of any kind is obviated. This in itself should prove a valuable feature, particularly for commercial vehicle work, where it is notoriously true that much of the trouble that is experienced originates in this part of the mechanism.

Of disadvantages, the system has few, the statement that the friction obtained is inadequate to permit really steep hills to be climbed having been disproven time and again and by different manufacturers. To the "doubting Thomases" who still incline to the belief, it should suffice to state that on any number of occasions friction driven

cars have been driven up hill until their motors stalled, demonstrating beyond cavil that the friction obtained really is sufficient. There is one real disadvantage in the system, however, and that is that when the greatest power is required from the engine, viz., when running on lowest "gear," the greatest slip takes place. This is because at the lower ratio of rotative speeds between the driving and the driven members, the driven disk presses against the other near its center, where the rotative motion of the driving disk on the friction material of the driven disk is more exaggerated than it is when the driven disk is near the periphery of the driving disk.

Another objection, though it is one that is largely hypothetical, is that for greatest efficiency it is essential that final drive be by means of a single chain or a pair of chains. Owing to the fact that the driven disk must be placed at right angles to the driving member, shaft drive would necessitate such a number of gears being employed that efficiency would suffer. The cost of manufacture also would be increased considerably because of the gears and the mechanical difficulty in ensuring positive and perfect alignment at all times. Just as it is with other things, however, methods of chain driving have been greatly perfected within the last few years, until at present there is a well-defined tendency to return to chain driving methods because of the efficiency and silence which they permit. This is particularly so in the case of the "silent" type of chain, the efficiency of which, it is claimed, is considerably greater than is that of gearing.

One of the first manufacturers to place a friction disk driven car on the market was the Buckeye Mfg. Co., of Anderson, Ind., and the mere fact that its product, the Lambert, has stood the test of some 10 years without having undergone any radical alteration as regards its transmission should go far toward proving its merit. As may be seen in the accompanying illustration, the system embraces the use of a flat plate directly connected to the engine and a slidably mounted friction wheel at right angles to it. By means of a side lever, the position of the driven wheel with respect to the center of the driving disk may be varied over a wide range. High speed is obtained, of course, when the friction wheel is nearest to the periphery of the driving disk; the nearer it approaches to the center the lower the "gear" ratio will be, and when it is moved over past the center its direction of rotation will be changed and the reverse motion obtained.

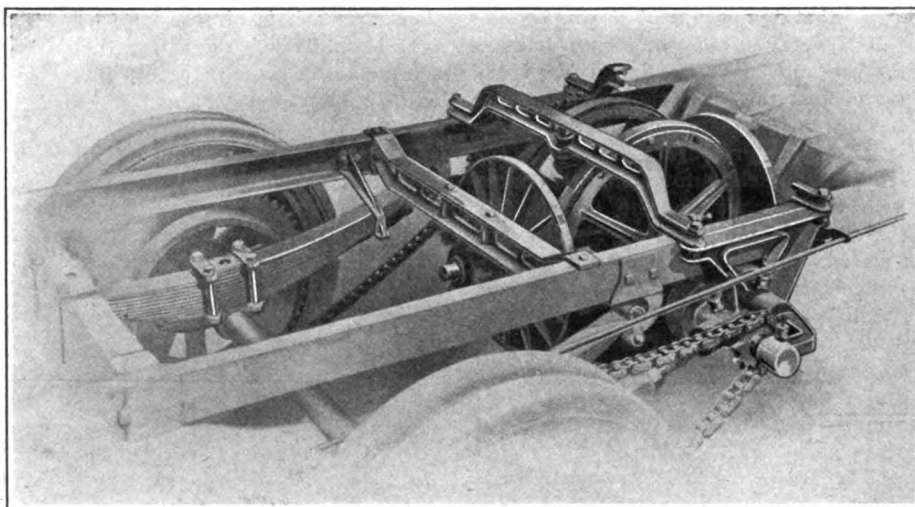
In order to make and break contact between the driving and driven members, a slip joint is placed in the shaft by means of which the driving disk is attached to the engine, the disk being held away from the wheel by a spring. When it is desired to start the car, it merely is necessary to depress the "clutch" pedal which moves the driving disk back against the driven mem-

ber. The pedal is held down, and the disks in contact, by means of a ratchet and pawl, the amount of pressure between the disks being under control of the operator who may increase it for hard pulling or decrease it for normal running conditions. One of the novel points of construction is that when the brake is applied the disks automatically are separated. Likewise when the disks are brought together the brake is released. Final drive is by means of a single Renold "silent" chain.

In the Cartercar system the principle involved is exactly the same as the Lambert, though the arrangement of the levers by means of which the driven disk is moved is slightly different, as may be seen in the picture. In this car, also, a single "silent" chain serves to transmit the power to the road wheels. The chain, however, is encased in a tight case and operates in oil.

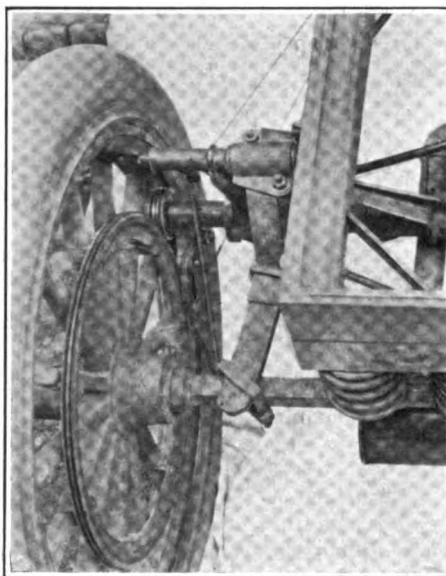
Double chain drive is employed in the Metz cars, and the rest of the system also is slightly different as regards the method of "hook-up," the levers by means of which the driven disk is moved across the face of the other being mounted over the rear axle, which is of the dead type. The single control lever is placed at the left, and, as in the case of the other two, the pressure between the disks is regulated by the foot through a pedal, according to the power demanded by conditions.

What scarcely may be termed a friction transmission, but which still partakes of many of the features of one, is used in Duryea cars, one rear wheel illustrating the system being shown herewith. Strictly speaking, it is a roller device and is infinitely simpler than any of the others, inasmuch as by its use a great number of parts are eliminated. The driving rollers which are grooved and fit correspondingly grooved rings bolted to the drive wheels are attached to the crankshaft of the engine. There are two pairs of driving rollers, a small pair for slow speed ahead and reverse, and a larger pair for high speed



ARRANGEMENT OF GARFORD TRANSMISSION ELEMENTS

ahead. Similarly, there are two pairs of grooved rings arranged concentrically with the grooves facing. By bringing the small



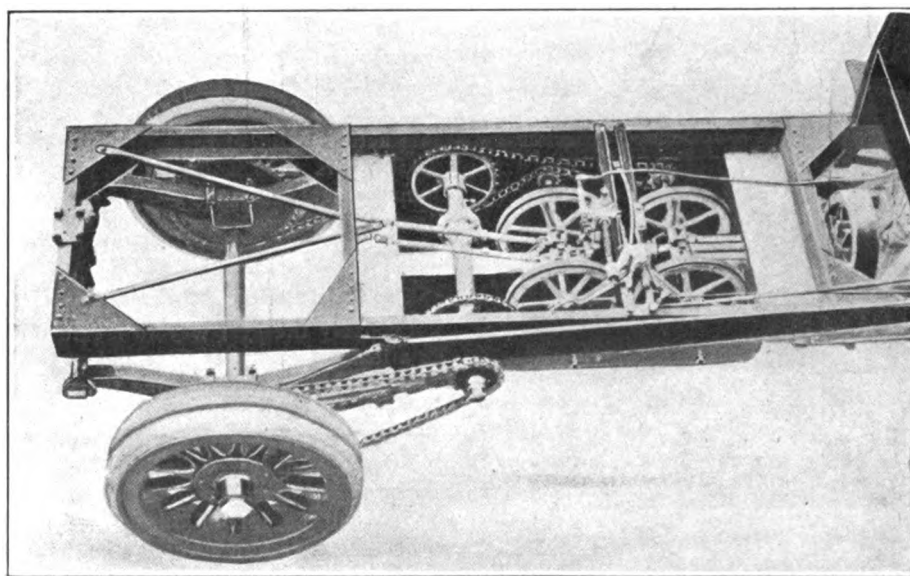
DURYEA ROLLER DRIVE

rollers in contact with the outside rings, slow speed ahead is obtained. When the small rollers are shifted backward so as to come into external contact with the inside rings, the reverse drive is obtained. Shifting the rollers inward and forward brings the larger pair into internal contact with the outside rings and gives high speed ahead. The shifting devices are simple and positive, and are actuated by means of a small heel pedal in the floorboard. Moving the pedal forward brings the small rollers into position for driving; withdrawing the "clutch" lever permits springs to return the parts to their normal position for high speed ahead or reverse. The driving rollers themselves are of hardened steel.

Though all those systems which have been instanced are in use in pleasure cars, the friction transmission is applicable to commercial vehicles as well, and there are those who opine that it is in this field that it is most useful because of the fact that skilled operators are unnecessary, and also because of its low upkeep cost, both of which are vital factors to the operation of motor trucks on a paying basis.

The system which is in use in Seitz trucks is particularly interesting in view of the fact that no less than five disks are used; it is practically a double friction system. Mounted at one end of a separate shaft, which is supported by two bearings from the main frame, the driving member is a simple friction disk of steel about one-half inch in thickness. The other end of the shaft on which the disk is mounted is attached to the engine by means of a flexible coupling. Two pairs of friction wheels, one pair on either side of the driving disk are mounted on individual shafts carried in sliding bearing boxes on the side frame members. The friction wheels are faced with paper fiber and are mounted at right angles to the driving disk.

In applying the system cognizance is taken of the well-known law of mechanics to the effect that when two bodies of equal size and weight oppose each other with equal force no motion is produced. This



SEITZ TRUCK CONSTRUCTION SHOWING DOUBLE FRICTION DRIVE

is to say that by means of a simple system of leverage two opposing friction wheels are moved into contact with the driving disk at the same time, in the same place—only on opposite sides of the disk—and with equal pressure. To allow the disk to adjust itself automatically between the two friction wheels, the driven disk shaft is flexibly mounted, as already has been stated. By this arrangement of friction wheels, side pressure and end thrust on the disk is avoided.

Because it seldom if ever is necessary to use more than one speed for reverse, the friction wheels by means of which the reverse motion is obtained are not arranged to be moved across the face of the driving disk. The other wheels, however, those by means of which the forward speeds are obtained, may be moved and move together, the actuating medium being a side hand lever. When the lever is moved forward, the forward driving wheels make contact with the driving disk, and when it is moved backward the reverse driving gears come into contact with the disk. As may be seen in the accompanying illustration of the Seitz system, the pairs of friction wheels are connected by means of chains, final drive to the rear wheels also being by side chains.

In the Garford system which hereafter will be used only on the one-ton trucks, the arrangement is distinctly different, two driving disks are mounted on the same shaft and connected to the flywheel of the engine with which they rotate in unison. Between these two disks are located the driven friction wheels which are faced with paper fiber. They are mounted on separate shafts, however, the reason being that for forward speeds both friction wheels are forced into contact with the forward driving disk. As they are on opposite sides of the center of the disk they must rotate in opposite directions for which reason they cannot be connected together. In order to impart the same direction of rotation to both driving sprockets, one of the friction wheels is connected to the other sprocket through the intermediary of gearing which changes the direction of rotation.

To obtain reverse drive, the rear driving disk is brought forward into contact with the friction wheels. By means of a hand lever, the fiber faced friction wheels may be moved together toward the center of the driving disks for minimum speed, and toward the outside for maximum speed, the same number of speed changes being possible in either direction. Final drive is by means of side chains.

Just what is the future of the friction disk transmission is open to conjecture. It is certain, however, that it is quite the simplest system in use at present, and is, not unlikely that the future may bring forth other applications.

At any rate, as has been stated, the transmission problem has not been solved to the satisfaction of every one concerned. For

that matter it is almost impossible that it ever should reach that stage, but it also is reasonable to expect that further advances will be made.

Frenchman Develops New Friction Drive.

While radical ideas concerning friction drive mechanisms are few and far between, something really new seems to have been evolved by a Frenchman, Ferdinand Forest, who has adapted his friction speed changing device to a Sizaire-Naudin car. The driving disk is corrugated, as the accompanying

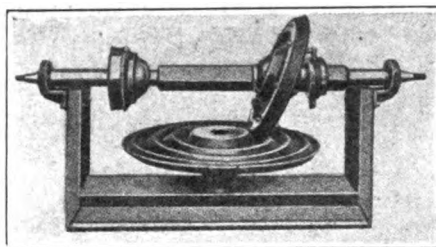
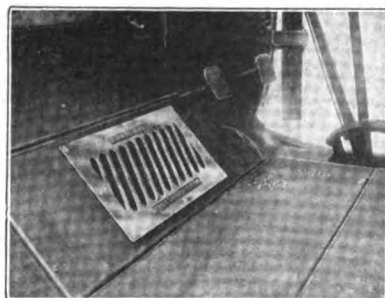


illustration shows, there being as many concentric grooves as there are to be changes of speed. The driven disk is on a spherical joint slidably mounted on a squared part of the driven shaft, and its edge is of an obtuse V shape. The corrugations in the driving disk are cut to the same angle, but the nearer they approach the center of the disk the more the V's incline their openings toward the periphery, so that while the driven disk is at right angles to its shaft when the outer groove is engaged, it departs more and more from the right angle as it is moved to one after another of the smaller grooves. Apparently the advantages of this device are that there is practically nothing but rolling contact between the disks, but while this holds good in large measure even when the inner grooves are engaged, the friction of the spherical joint due to the angularity of the driven disk to its shaft and the heavy pressure, would seem to offset this advantage.

How Reynolds Heats Cars and Trucks.

Among the devices designed for the purpose of heating the front half of touring



cars and limousines in cold weather, it is doubtful if there are any quite so simple as the Reynolds heater, which is manufactured by the Reynolds Dull Flasher Co., of Chicago, Ill., and which is shown by the accompanying illustration. It utilizes the hot air drawn from the engine into the space under the hood through the radiator

interstices and sends it in a continuous flow over the feet and bodies of the persons in the front seat of the car.

The heater consists of a box-like casting, which is let into the floorboard and screwed into place, and a shutter which is used for regulating the amount of heat desired. The casting is so constructed as to permit the air to pass through, but to obstruct the passage of oil and grease from the flywheel. It is made in three sizes, adapted to small cars, medium size touring cars, and inside-driven limousines, respectively; the latter, which is the largest, size being also recommended for truck use. Particular stress is laid by the manufacturers upon the advantages of the "heater" for trucks, where drivers have to make longer trips in cold weather, and are in slower motion than drivers of pleasure cars.

Mosler Evolves Radical Anti-skid Device.

Following what appears to be the path of least resistance, inventors have been busy for years devising anti-skidding devices which are designated for attachment to the tires of a motor car or else are themselves tires having peculiarly constructed treads. Something radically different, however, is the new anti-skid brought out by A. R. Mosler & Co., of 163 West 29th St., New York, the well known makers of spark plugs and other accessories, which differs from the familiar forms of its class in having nothing whatever to do with the tires or wheels. The new device, which is termed "Skidnit," consists of what the makers call a "tripod arm," attached to the rear axle and terminating in "a flat surface carried on small rollers."

It is intended to be brought into use only when there is danger of skidding, and to this end is controlled by the driver, who without leaving his seat, can lower it into contact with the road or raise it until it is out of sight under the car body. When lowered the business end of "skidnit" rolls along the road offering no retarding effect to the progress of the car, according to the makers, until skidding commences, when a flat surface is brought into contact with the ground, preventing side-slipping beyond the slight amount required to bring the device into action. One of the claims made for the "skidnit" is that it makes non-skid hands unnecessary and thus saves tires from the damage which, they aver, such appliances cause.

To Locate Hole in Punctured Float.

Probably the best way to locate the hole in a leaky carburettor float and at the same time get rid of the gasoline that has found its way in, is to immerse the float in very hot water and watch for the bubbles that will issue from the puncture. The heat will vaporize the gasoline and, expanding, the vapor will be forced out. Care must be taken, however, to remove the float from the water the instant bubbles cease to show, or water will work in.

RED AND GOLD FOR THE GARDEN

(Continued from Page 801)

- 2 The White Company.
 15 Willys-Overland Co.
 9 Winton Motor Carriage Co.
- Pleasure Vehicles — Electric.
- 214 Anderson Electric Car Co.
 213 Baker Motor Vehicle Co.
 110 Columbia Motor Car Co.
 212 Flanders Mfg. Co.
 215 The Waverley Co.
- Accessories.
- 157 Ajax-Grieb Rubber Co.
 *603 Ajax Trunk & Sample Case Co.
 *526 The J. Alexander Mfg. Co.
 *314 The Allen Specialty Co.
 178 The American Ball Bearing Co.
 503 The American Bronze Co.
 258 American Circular Loom Co.
 506 American Oil Pump & Tank Co.
 *519 American Rim Co.
 423 American Taximeter Co.
 541 American Vanadium Company.
 502 The Aristos Co.
 551 James R. Ashley.
 566 Atlas Chain Company.
 140 Atwater Kent Mfg. Wks.
 *281 Auburn Auto Pump Co.
 594 Automobile Journal Pub. Co.
 *422 Auto Specialty Co.
 245 Automobile Supply Mfg. Co.
 *573 Auto Wind Shield Co.
 *595 The A-Z Co.
 125 The Badger Brass Mfg. Co.
 136 Baldwin Chain & Mfg. Co.
 586 Bantam Anti-Friction Co.
 555 C. B. Barger & Co., Ltd.
 587 Barthel, Daly & Miller.
 *309 Batavia Rubber Co.
 *577 Baum's Castorine Co.
 249 The Benford Mfg. Co.
 *402 The Best Ignition Equipment Co.
 *533 John W. Blackledge Mfg. Co.
 *292 Booth Demountable Rim Co.
 218 Bosch Magneto Company.
 253 Bower Roller Bearing Co.
 190 Bowser Roller Bearing Co.
 190 Bowser & Co. Inc., S. F.
 *261 Briggs & Stratton Co.
 186 Briscoe Mfg. Co.
 *611 The Brown Co.
 169 Brown-Lipe Gear Co.
 255 The Buda Company.
 174 Byrne Kingston & Co.
 *607 Calmon Asbestos & Rubber Works.
 544 Carnegie Steel Co.
 *531 F. S. Carr Co.
 244 Champion Ignition Company.
 184 The Chandler Co.
 241 Chicago Telephone Co.
 600 Chilton Co.
 546 Class Journal Co. (Automobile).
 545 Class Journal Co. (Motor Age).
 *605 Clucker & Hixson Co.
 *563 C. M. B. Wrench Co.
 155 Coes Wrench Co.
 217 Columbia Lubricants Co.

- 185 Columbia Nut & Bolt Co., Inc.
 154 Conn. Tel. & Electric Co.
 152 Consolidated Rubber Tire Co.
 *277 Continental Rubber Works.
 *266 Adam Cook's Sons.
 220 Covert Motor Vehicle Co.
 *265 C. Cowles & Co.
 *510 Cox Brass Mfg. Co.
 187 Wm. Cramm & Sons Ship & Eng. Bldg. Co.
 592 C. J. Cross & Co.
 *572 Frank H. Cross Co.
 240 Crucible Steel Co. of America.
 *569 Smalley Daniels.
 *516 The Dayton Engineering Laboratories Co.
 243 The Dean Electric Company.
 313A Detroit Electric Appliance Co.
 250 Detroit Lubricator Co.
 138 Diamond Chain & Mfg. Co.
 127 Diamond Rubber Co.
 182 Joseph Dixon Crucible Co.
 *310 Doehler Die Casting Co.
 *608 Donnelly Motor Equipment Co.
 233 Dorian Remountable Rim Co.
 *287 Dover Stamping & Mfg. Co.
 *317 Double-Fabric Tire Co.
 260 Driggs-Seabury Ordnance Corp.
 *404 Duplex Magneto & Spark Plug Co.
 *606 John L. G. Dykes Co.
 *248 The Eagle Co.
 602 J. Eavenson & Sons, Inc.
 237 Edison Storage Battery Co.
 181 The Edmunds & Jones Co.
 216 Eiseemann Magneto Co.
 *578 El Arco Radiator Co.
 183 Electric Storage Battery Co.
 \$576 H. A. Elliott.
 *413 Endurance Tire & Rubber Co.
 159 English & Mersick Co.
 *518 Essex Rubber Co., Inc.
 *304 Esterline Company.
 *417 E. Z. Way Motor Grease Co.
 *515 Fedders Mfg. Co.
 222 Federal Rubber Mfg. Co.
 559 Findeisen & Kropf Mfg. Co.
 164 The Firestone Tire & Rubber Co.
 122 The Fisk Rubber Co.
 406 L. V. Flechter & Co.
 *609 Ernst Flentje.
 *589 H. H. Franklin Mfg. Co., (Die Casting Department).
 540 Peter A. Frasse & Co.
 *274 Gabriel Horn Mfg. Co.
 *604 Garage Equipment Mfg. Co.
 *529 Gardner Engine Starter Co.
 *612 Geiszler Bros. Stge. Battery Co.
 307 Gemmer Mfg. Company.
 320 General Electric Company.
 501 James L. Gibney & Bro.
 *273 The Gilbert Mfg. Co.
 561 M. S. Gilmer.
 *271 The Globe Machine & Stamping Co.
 126 The B. F. Goodrich Co.
 130 The Goodyear Tire & Rubber Co.
 427 Gould Storage Battery Co.
 129 Gray & Davis.
 *267 Gray-Hawley Mfg. Co.
 *524 The Gray Specialty Co.
 *626 Emil Grossman Company.
 *564 The Hall-Thompson Co.
 *525 Hardman Tire & Rubber Co.
 *528 E. A. Hardy & Co.
 134 R. E. Hardy Co.
 162 A. W. Harris Oil Co.
 220A Harrison Radiator Co.
 160 Hartford Machine Screw Co.
 156 Hartford Suspension Co.
 232 Havoline Oil Co.
 *282 George A. Haws.
 *579 Hawthorne Mfg. Co.
 *219 Hayes Manufacturing Co.
 *270 Heinze Electric Co.
 *259 Herz & Co.
 305 The Hess-Bright Mfg. Co.
 *302 Hess Spring & Axle Co.
 *262 Hodgman Rubber Company.
 189 The Hoeffcker Co.
 588 S. Hoffnung & Co. Ltd.
 *622 The R. M. Hollingshead Co.
 601 Homo Company of America.
 597 The Horseless Age Co.
 418 H. J. Houpert.
 131 Hyatt Roller Bearing Co.
 *509 Hydraulic Oil Storage Co.
 *575 Ideal Wind Shield Co.
 549 The Ignition Co.
 558 Imperial Bearing Co.
 257 International Acheson Graphite Co.
 *513 International Metal Polish Co.
 *318 Jackson Church Wilcox Co.
 252 Jacobson Brandow Company.
 173 Janney, Steinmetz & Co.
 *567 Jeffery-Dewitt Co.
 547 The J. M. Shock Aborber Co.
 84 Isaac G. Johnson & Co.
 137 Phineas Jones & Co.
 143 The Jones Speedometer.
 *291 Kellogg Mfg. Co.
 **564 W. J. Kells Mfg. Co.
 598 Keystone Lubricating Co.
 *613 K. W. Ignition Co.
 *428 Wm. R. Laidlaw, Jr.
 231 Leather Tire Goods Co.
 225 Lee Tire & Rubber Company.
 590 Lefevre Arms Co.
 133 Light Mfg. & Foundry Co.
 229 Link Belt Company.
 226 Lovell-McConnell Mfg. Co.
 151 McCord Mfg. Company.
 *280 The McCue Company.
 552 F. T. McGinnis.
 *276 Manufacturers Foundry Co.
 537 Marburg Brothers, Inc.
 553 The Mead Engine Company.
 548 Merchant & Evans Co.
 *421 Metal Stamping Co.
 *520 Meteor Auto Tank Co.
 135 C. A. Mezger, Inc.
 228 Michelin Tire Company.
 161 Chas. E. Miller.
 *618 Wm. P. Miller's Sons.
 562 Modern Auto Appliance Co.
 *565 Morrison-Ricker Mfg. Co.
 180 A. R. Mosler & Co.
 *581 Frank Mossberg Co.
 *556 Motor.
 *617 Motor Car Equipment Co.
 *560 Motor Vehicle Publishing Co.
 505 Motor World Publishing Co.
 234 The Motz Tire & Rubber Co.
 239 Munice Gear Works.

- *616 L. J. Muttly Co.
 598A Mutual Auto Accessories Co.
 411 Narragansett Chemical Co.
 *415 Geo. Nash Co.
 *621 Nathan Novelty Mfg. Co.
 132 National Carbon Co.
 *263 National Coil Co.
 *242 National Rubber Co.
 139 National Tube Co.
 223 New Departure Mfg. Co.
 *426 New Jersey Car Spring & Rubber Company.
 539 Newmastic Tire Co.
 591 The New Miller Mfg. Co.
 *624 New York Coil Co.
 141 N. Y. & N. J. Lubricants Co.
 251 New York Sporting Goods Co.
 561 New York V-Ray Sales Co.
 585 Niagara Lead & Battery Co.
 *278 Noera Manufacturing Co.
 *514 A. S. Noonon Tool & Mach. Works.
 *517 North East Electric Co.
 *319 Northway Motor & Mfg. Co.
 172 Oliver Mfg. Co.
 *221 The Pantasote Co.
 416 The Paragon Auto Parts Mfg. Co.
 147 Pennsylvania Rubber Co.
 542 The Perfection Spring Co.
 *403 Perfect Window Regulator Co.
 **565 Philadelphia Storage Battery Co.
 *316 The G. Piel Company.
 167 Pittsfield Spark Coil Co.
 *568 Polson Manufacturing Co.
 **556 Power Wagon Publishing Co.
 *570 Prince Tire Co.
 599 Thos. Prosser & Son.
 146 Remy Electric Co.
 148 Republic Rubber Co.
 543 Rhineland Machine Works Co.
 *424 P. Reilly & Son.
 *623 Riley-Klotz Mfg. Co.
 *615 R. I. V. Co.
 *279 Rose Manufacturing Co.
 **314 Ross Gear & Tool Co.
 238 The Royal Equipment Co.
 *285 Rushmore Dynamo Works.
 290 Russian Tire Co.
 *269 J. H. Sager Co.
 535 S. & S. Shock Absorber Co.
 *614 The S. B. R. Specialty Co.
 *275 The Seamless Rubber Co.
 *264 C. A. Shaler Co.
 *512 Shawmut Tire Co.
 534 Sheldon Axle Co.
 557 Simonds Mfg. Co.
 504 The S. K. F. Ball Bearing Co.
 149 A. O. Smith Co.
 *429 Grant E. Smith.
 535A Smith Gasoline Meter Co.
 554 Sonora Motor Horn Co.
 *521 L. Sonneborn Sons, Inc.
 *312 F. W. Spacke Machine Co.
 308 The Sparks-Withington Co.
 *584 Sphinx Motor Co.
 168 Spicer Mfg. Co.
 128 C. F. Splitdorf.
 *301 The Sprague Umbrella Co.
 *224 Springfield Metal Body Co.
 163 Standard Roller Bearing Co.
 247 Standard Thermometer Co.
 *582 Standard Tire & Rubber Co.
 527 The Standard Tire Protector Co.
 177 The Standard Welding Co.
 *583 John T. Stanley.
 *405 Star Speedometer Co.
 306 The Start-Life Co.
 *571 Culver Stearns Mfg. Co.
 *286 Stein Double Cushion Tire Co.
 *619 Stevens & Co.
 227 Stewart & Clark Mfg. Co.
 235 Stromberg Motor Devices Co.
 254 Stutz Auto Parts Co.
 171 The Swinehart Tire & Rubber Co.
 246 The Texas Company.
 538 Andrew C. Thompson Auto Co.
 166 The Timken Detroit Axle Co.
 165 Timken Roller Bearing Co.
 *407 Chas. O. Tingley & Co.
 **313 Torbenson Gear and Axle Co.
 536 Joseph Tracy.
 230 Treadwell Engineering Co.
 *508 The Troy Carriage Sun Shade Co.
 *620 The Tryon Auto Pump Co.
 *511 Chas. H. Tucker Co.
 *523 Tucker Tool & Machine Co.
 158 The Turner Brass Works.
 *414 The Typhoon Signal Co.
 *610 Union Auto Specialties Co.
 315 United Rim Co.
 *532 U. S. Auto Horn Co.
 144 United States Light & Heat Co.
 124 United States Tire Co.
 *507 United Steel Co.
 **309 United Steel Co.
 188 Vacuum Oil Co.
 *272 Valentine & Company.
 311 Vanadium Metals Company.
 409 Van Auken Indicator Co.
 *625 Vanguard Mfg. Co.
 123 The Veeder Mfg. Co.
 *412 Velox Polish Mfg. Co.
 *268 Vesta Accumulator Co.
 *303 Voorhees Rubber Mfg. Co.
 *580 Warburg Rim Co.
 *574 Ward Leonard Elect. Co.
 176 Warner Gear Co.
 150 Warner Instrument Co.
 236 The Warner Mfg. Co.
 430 Wasson Piston Ring Co.
 550 Wayne Oil Tank & Pump Co.
 142 Weed Chain Tire Grip Co.
 *530 Western Mfg. Co.
 170 Weston Mott Co.
 *289 Western Tool & Forge Co.
 145 Wheeler & Schebler.
 *228 White & Bagley Co.
 179 The Whitney Mfg. Co.
 *283 Willard Storage Battery Co.
 *420 C. A. Willey Co.
 175 J. H. Williams & Co.
 *425 Wm. R. Winn.
 *313 Wolverine Lubricants Co.
 153 O. W. Young.
 717 Flanders Manufacturing Co.
 716 Harley-Davidson Motor Co.
 703 The Hendee Mfg. Co.
 709 Henderson Motorcycle Co.
 715 The Miami Cycle & Mfg. Co.
 702 Minneapolis Motor Cycle Co.
 796 Motorcycling.
 711 Motorcycle Publishing Co.
 714 New Era Auto Cycle Co.
 705 The Pierce Cycle Co.
 719 The Pope Mfg. Co.
 710 Reading Standard Co.
 Gasolene Commercials—
 Part II.
 11A American Locomotive Co.
 6A The Autocar Co.
 103A Brush Runabout Co.
 114A Buick Motor Co.
 104A Cartercar Co.
 4A Garford Co.
 8A-110A General Motors Truck Co.
 10A Grabowsky Power Wagon Co.
 1A Knox Automobile Co.
 3A Locomobile Co. of America.
 16A Lozier Motor Co.
 102A McIntyre, W. H. & Co.
 15A Mack Bros. Motor Car Co.
 14A Metzger Motor Car Co.
 105A Morgan Motor Truck Co.
 12A Packard Motor Car Co.
 9A Peerless Motor Car Co.
 2A Pierce-Arrow Motor Car Co.
 18A Pope Mfg. Co.
 113A Reo Motor Truck Co.
 17A Sampson, Alden, Mfg. Co.
 5A Speedwell Motor Car Co.
 7A Stearns, F. B., Co.
 13A White Co.
 Electric Commercials—Part II.
 106A American Electric Car Co.
 109A Baker Motor Vehicle Co.
 106½A Bronx Electric Vehicle Co.
 111A-115A General Vehicle Co.
 101A Studebaker Automobile Co.
 108A Waverly Co.
 107A Ward Motor Vehicle Co.
 Two Shows For Pittsburgh Again.
 Contrary to a report that had been circulated, the conflicting interests in Pittsburgh which last year gave rise to two shows there have not become reconciled, and two shows again will be the rule. The Automobile Dealers' Association's show, which is the sixth annual affair of its kind to be held under these auspices will open on January 27th in Duquesne Garden and until February 3d pleasure cars will be exhibited. Commercial vehicles exclusively will occupy the floor from the 5th of February to the 10th. The other show, which is to be held under the auspices of the so-called insurgents, the Pittsburgh Automobile Show Association—which has increased from 22 to 43 members—is to run from January 17th to 24th, and will be held in Exposition building; both pleasure and commercial vehicles will be exhibited during the one week.

Motorcycles—Part I.

- 718 American Motor Co.
 708 Aurora Automatic Machinery Co.
 701 Bicycling World Co.
 704 Consolidated Mfg. Co.
 712 Eclipse Machine Company.
 713 Emblem Mfg. Co.
 707 Excelsior Supply Co.

PROBLEMS OF THE PRIVATE GARAGE

**How One Motorist Solved Them—Cheap
Boy Labor a Factor in Keeping Car
Clean at Low Cost.**

The mere keeping of an automobile, the housing of it in a small structure close by the home of the owner, presents little difficulty. A house that is sufficient for the purpose can be put up at a cost that is small compared with the cost of storing a car at a public garage during the idle moments of its useful life. With a private garage and a gasoline tank buried outside so that fuel may be purchased in quantity, the owner is in a position to enjoy the pleasures of motoring at the minimum expense.

But there is just one drawback to such procedure. If the car is of the average type with the usual amount of bright paint and brass-work, its appearance is likely to be far from pleasing in a very short time, even if the weather is nearly perfect, assuming, of course, that the garage is not equipped with apparatus for washing the car, and few of them are. Two alternatives remain, viz., to leave the car at a public garage occasionally, for cleaning, which is objectionable, inasmuch as the object of the private garage is defeated in a measure by this course, or to design the finish of the car so that it seldom if ever will require other than the most superficial care.

The latter plan is one that has been adopted by more than one motorist, and after a year's experience with what he styles "the car that is never cleaned," one of them reviews the merits and demerits of the policy, and in doing so outlines several interesting modifications of the plan, which he intends soon to put into practice.

"Were I now ordering another car," he says, "I could actually make it all but dirt-proof. I could have every portion of metal work in the new black oxidized finish, which never looks dull—a failing of the best brass—and which shines more brightly when it is wet and other surfaces would be tempted to tarnish. I should have the wheels disked in somehow. Dirty artillery wheels look abominable, and I must admit that the mud-caked spokes of my wheels often have proved an eyesore."

"But I am not going to order a new car," he continues, "and consequently for the coming season I shall adopt an entirely new policy. In my neighborhood there are many boys of 12 years and upwards who are accustomed to eke out the meager earnings of their respectable but inefficient sires by selling papers, delivering groceries, etc., for an hour or two every evening, and three hours on Saturday morning. I could procure any one of a score of youngsters tomorrow morning for the munificent sum of 75 cents a week or thereabouts. As the open doors of my garage leave the car in

full sight of the house, I propose to hire one of these 'young Turks,' as their fond mammas proudly designate them, to keep my wheels clean and my metal work bright, with which small attention my car will always look as if a well-paid chauffeur had spent three hours per diem on it. And such is the glamor of motoring, I dare guarantee to have the pick of the local urchins permanently at my disposal when my requirements in this direction are known."

Overgard Heads Nebraska Association.

Dr. A. P. Overgard, Fremont, Neb., was elected president of the Nebraska State Automobile Association at the annual meeting held last week in Omaha, Neb. The other officers are: Vice-presidents, I. E. Doty, David City; J. M. Prime, Oxford; L. M. Talmadge, Grand Island; secretary, D. E. Watkins, Omaha; treasurer, E. R. Wilson, Omaha; directors, John T. Swan, Auburn; Lee Huff, Omaha; A. P. Overgard, Fremont; I. E. Doty, David City; H. E. Erickson, Holdrege; J. T. Dorgan, Lincoln; W. J. Kirkland, Omaha; Fred J. Bell, Ord; state representative A. A. A., W. D. Hosford, Omaha; state legislative committee, D. S. Dalby, Beatrice; Judge Epperson, Clay Center; Fred W. Ashton, Grand Island.

What Happened to Burman and Hemery.

Despite reports to the effect that Burman's chance to land some of the prize money in the Grand Prize race at Savannah on Thanksgiving Day was spoiled by a broken magneto, it transpires that that was not the reason after all. The Bosch magneto on his Marmon sparked with its accustomed vigor and what really happened was that the pump shaft, which serves to drive the magneto, snapped. The magneto in Hemery's Benz also fired the mixture in the cylinders with its expected regularity, and though he also was reported to have retired with ignition trouble, it was really a cantankerous valve that caused his early withdrawal.

Chicago May Bid for Grand Prize Race.

If Savannah, Ga., definitely decides that it has had enough of Grand Prize races, it is not improbable that the next one will be run on the Elgin (Ill.) course. The Chicago Motor Club, which conducts Elgin's National road championships, already is moving in the matter or rather its newly elected president has stated that Barkis—that is, Chicago—probably will be found willing, if Savannah isn't.

Where Jail Sentences Are Numerous.

According to statistics just published, one motorist and seven pedestrians were killed in the grand-duchy of Baden, Germany, in automobile accidents in 1910. During the same period 51 motorists and 65 other persons were injured. Twenty-four professional chauffeurs and two private owners were sentenced to jail for having caused the accidents.

BELGIAN CITY'S QUEER DISTINCTION

**Cobblestones and Prejudice That Dampen
Use of Cars—Bakery Forced to Discard
Trucks—Chauffeurs Cheap.**

Ghent, Belgium, probably has the peculiar distinction of having fewer motor cars per population than any other thoroughly civilized city in Europe. According to Henri de Rudder, a resident of Ghent, who is in this country on a short visit, there are only about 70 cars owned by a population of 160,000, none of which are commercial vehicles. The streets of Ghent, which are paved chiefly with cobblestones, constitute the chief cause of the scarcity of automobiles, but as Ghent is to be the scene of a World's Fair in 1913 the necessity for improvement finally has become apparent and steps in that direction already are being made, and in due course the Belgian city probably will be able to live down its undesirable distinction.

At one time there were six commercial motor vehicles in use in Ghent, but now there are none, not, however, solely because of the roughness of the streets, but, according to de Rudder, because the people of Ghent became possessed of the notion that the bread which was delivered by the trucks smelled and tasted of gasoline. Because of this unfounded idea the business of the big bakery company which owned the trucks fell off so rapidly that as a matter of self preservation the owners were compelled to use horse drawn vehicles. Taxicabs also proved a failure in Ghent, the miserable streets adding so much to the cost of upkeep of the cabs that the venture proved unprofitable and was discontinued. One garage, however, contrives to exist in the Belgian city where, de Rudder states, a first-class chauffeur can be had for the munificent sum of \$30 per month, plus board and lodging, the owner also being compelled to pay the chauffeur's license fee of \$20 per year. In Belgium all employers are also compelled to pay a tax on each employee and also to insure the latter. Even the housewife does not escape; she is taxed and compelled to take out an insurance policy for her hired girl.

Although women visitors are not interfered with, Belgium women are not permitted to drive motor cars, the issuance of licenses to them being prohibited by law. The basis of automobile taxation in Belgium also is peculiar, being at the rate of \$12 per wheel regardless of weight, horsepower or passenger capacity. In relating these interesting details, Mr. de Rudder laughingly stated that when the 70 motorists of Ghent desire to obtain real pleasure, they drive into Holland, which is a half-hour distant and where the roads are really good.

This advertisement in the Saturday Evening Post suggests new possibilities in the automobile field

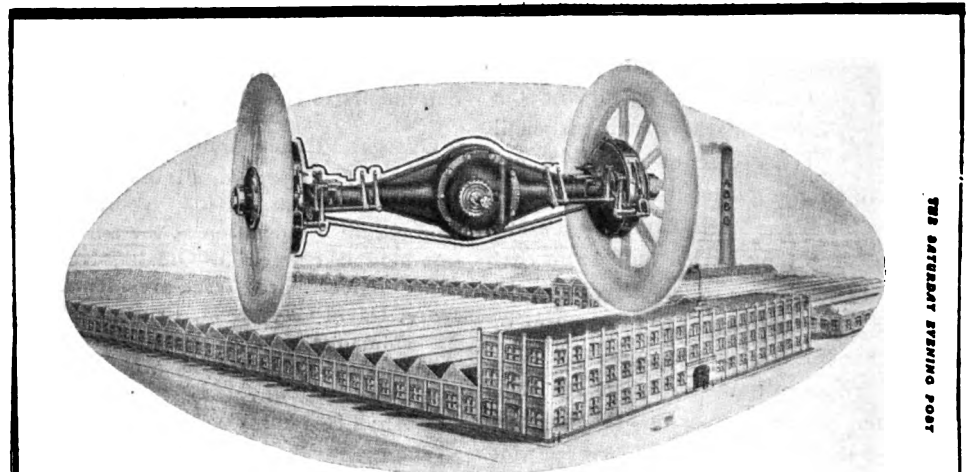
Perhaps you were one of the five million who read it.

If you are an automobile manufacturer or dealer, it will pay you to read it again.

A scientific investigation of American axles has convinced the more prominent automobile manufacturers that mechanical correctness and safety from accidents will secure to their cars the high favor of motor car buyers.

This weight of evidence will not only accrue to the reputation of those cars that are now using American axles; but will direct the future selections of the informed motorist to the same high degree of safety and satisfaction which experience has taught him to expect in the better automobiles.

The wide-spread sentiment in favor of American Axles will greatly aid the man, who is yet to buy his first motor car, in escaping the dangers and expense so surely attendant upon the purchase of lesser than American quality.



Some day *American* Axles will equip a majority of all good American cars

It is interesting and impressive to talk with a motor manufacturer who has adopted the *American* Axle. He entertains no misgivings, no doubts, no uncertainties. He firmly believes that he has bought the best axle in the world; and he will tell you why. And we firmly believe that the weight of his experience will presently impel a majority of other manufacturers to specify the *American*.

We have implicit faith in the working of that business-law which rewards a product in proportion to its deserts; and we are willing that its application should apply to the *American*.

We believe that in the manufacturing world—whether it be axles or transmissions or motor cars themselves—a sifting process goes on continuously which sends the unfit to the bottom and the fittest to the top.

We believe that that inexorable law is set in motion by a public opinion which will unerringly hunt out the *American* if it is the best axle just as it has hunted out the best motor cars.

And it is our quiet conviction that the *American* is the best axle built in America today; that the sifting process is under way; that public opinion is pressing upon the manufacturer; and that it is only a question of time before the *American* will be specified in most of the good cars in this country.

Some of the reasons back of our faith in the immediate wide-spread recognition of

American

AXLES

The American Axle is furnished to the Manufacturer Equipped With Annular or Cup and Cone Ball Bearings or With Straight or Taper Roller Bearings, as May be Specified

In his investigation of the *American* Axle the motorist immediately commensurate a fact of tremendous significance.

He knows that sixty per cent (60%) of all motor car accidents are due to axle defects.

He knows, moreover, that the motor buying public has become immensely interested in this particular phase of motor car construction; because of the danger to life and limb which it involves.

And his discovery that the *American* Axle has never as yet been asked to accept responsibility for such disasters; that it has stood the greatest racing strains; and that it has been instrumental in establishing most of the existing track and road records, upon

him on to further investigation of the methods involved in its construction.

Whenever we have been able to induce such an investigation, it has invariably resulted in the selection of the *American*.

The motor car owner is interested in the car equipped with an *American* Axle because of its clean, clear record in the matter of axle accidents.

The careful, non-discriminating manufacturer is interested for the same reason—because of the extra factor of safety which the *American* Axle supplies to his product.

This safety, of course, is only another word for quality—the reflection and the result of scrupulous adherence to the highest manufacturing standards.

You as a motor car owner are vitally concerned in the element of safety and we frankly desire to enlist your interest in the advantages of the *American* Axle in this respect.

Public opinion recognizing the safety of the *American* will crystallize in the conversion of a majority of all good manufacturers in due time.

Therefore, even though you are not ready to buy a car equipped with the *American* Axle, or cannot have the car you now own equipped with it, we shall be glad to have you read our little book called "Axle Safety"; or if you are interested for a more thorough study of our methods, the more elaborate book called "Front and Rear Axles."

Send for this literature today.

AMERICAN BALL BEARING COMPANY, CLEVELAND, OHIO

You are undoubtedly interested in this phase of the automobile industry.

Send for our booklets—"Front and Rear Axles" and "Axle Safety" today.

AMERICAN BALL BEARING COMPANY, Cleveland, Ohio



997,409. Stalling Device for Automobiles and Other Vehicles in Case of Accident. Leo O'Brien, Montclair, N. J. Filed Sept. 27, 1910. Serial No. 584,029.

1. In a device for stalling automobiles and the like, a combination of a suspended front rod, a detent therein for restraining a brake-applying mechanism, a connection between said detent and the front rod, and a ratchet and pawl for holding the brake-applying mechanism in position after it acts.

997,417. Carburetter. William F. Rothe, East St. Louis, Ill., assignor to Wm. F. Rothe and Company, East St. Louis, Ill., a Corporation of Illinois. Filed Feb. 21, 1910. Serial No. 544,991.

1. A carburetter comprising a hollow casing having a mixing chamber in the bottom thereof, an air inlet passage leading to said mixing chamber, an outlet passage leading from said mixing chamber, a throttle valve arranged to control the outlet of the mixed air and oil, a valve arranged to control the air inlet, an oil nozzle arranged to discharge into said mixing chamber, a valve arranged to control the discharge from said oil nozzle, a resilient working connection between said air valve and said oil valve whereby said valves are simultaneously actuated, an adjustable stop for varying the opening limit of said oil valve,

and an adjustable stop for proportionately varying the limit of the opening of said air valve with respect to the oil valve.

997,443. Pneumatic Tire. Thomas Dunn, London, England. Filed Nov. 25, 1910. Serial No. 594,133.

The combination, with a wheel rim, and a tire cover engaging therewith; of a pneumatic tire arranged in the upper part of the tire cover with its lower part extending crosswise between the sides of the cover and adapted to form a diaphragm across the cover, and a packing comprising a pneumatic tube provided with a cover of inelastic material having a reinforcing band at its periphery, said packing having a cross-section of substantially triangular outlines, arranged between the said tire and rim with two of its sides bearing against the end portions of the tire cover and operating to reinforce the said diaphragm.

997,470. Vehicle Spring. Arthur Leland Snow, Kingfisher, Ohio, assignor to Grace C. Snow, Comfort, Tex. Filed June 30, 1908. Serial No. 441,187.

1. A device of the character described, comprising a continuous leaf spring, and a leaf spring associated therewith formed of a plurality of pivoted sections, said pivoted sections being provided with portions designed to abut after a predetermined movement of the spring.

997,484. Lamp. Richard H. Welles, Kenosha, Wis., assignor to the Badger Brass Mfg. Co., Kenosha, Wis., a Corporation of Wisconsin. Filed May 3, 1909. Serial No. 493,459.

1. The combination with a lamp having

a reflector therein, of a relatively fixed burner mounted in the focus of said lamp, a substitute burner adapted to be moved into and out of focus above said fixed burner, and spring actuated mechanism for automatically shifting the movable burner into the focus of the lamp.

997,549. Resilient Wheel. George R. Gay and John C. Streibich, Little Rock, Ark. Filed Feb. 25, 1911. Serial No. 610,809.

In a resilient wheel, the combination of an inner rim, an outer rim spaced therefrom, leaf-springs connected between their ends to the inner rim, boxes containing roller-bearings provided on the free ends of these springs, rollers mounted in these boxes and in contact with the outer rim, a coil-spring connected at one end to each box and an attaching device on the outer rim and between the rollers to which the other ends of the coil-springs connect.

HEAT-TREATED
AUTOMOBILE FRAMES
CHROME NICKEL STEELS AND OUR
OWN SPECIAL ALLOYS USED EXCLUSIVELY
PARISH MAN'G CO.
PROMPT DELIVERIES READING, PA.

Push Over Valve
Press the Lever and It's Tight
Simple, Isn't It?
Grab Pump Connection
25c. at All Dealers or
MOTOR CAR EQUIPMENT CO.
55W Warren Street New York City

PITTSFIELD

SPARK COILS

Splendidly Designed — Perfectly Constructed

THE PERFECTION with which these coils operate, their long life, their reliability have been obtained not by chance, but by a deliberate determination on our part to perfect every detail in their construction.

Every particle of moisture and air being removed, the windings are impregnated under great pressure with a solid compound that makes them absolutely waterproof. The contact points are larger than usual and made of expensive iridio-platinum. Cost of renewals infinitesimal.

Vibrators make perfect electrical contact at every impulse; a semi-hammer blow is struck; points cannot stick; less frequent adjusting is required.

Condensers are of large capacity and sparking at vibrator points almost entirely eliminated. A single unit may be removed from box without disturbing the others and without removing from dash.

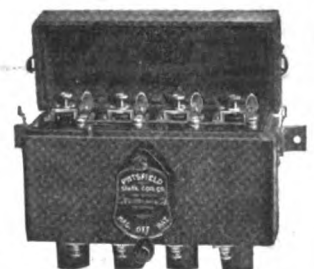
Pittsfield Coils provide the most perfect ignition obtainable. Sparking is sure—combustion complete.

PITTSFIELD SPARK COIL CO., Dalton, Mass.

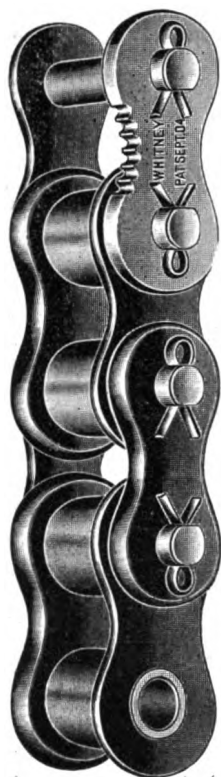
SALES REPRESENTATIVES—*New England States, William J. Connell, 555 Boylston St., Boston, Mass. Atlantic States, Thomas J. Wetzel, 17 W. 42nd St., New York City. *Central States, Brown & Caine, 1517 Michigan Ave., Chicago, Ill. *Pacific States, Chanslor & Lyon Motor Supply Co., San Francisco, Los Angeles and Fresno, Cal., Seattle and Spokane, Wash., Portland, Ore. *Canada, Russell Motor Car Co., West Toronto, Canada.

*Full line carried.

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complete line of Pittsfield Ignition Specialties,
including Magnetos, Timers, Plugs and Switches.



The Greatest Mileage

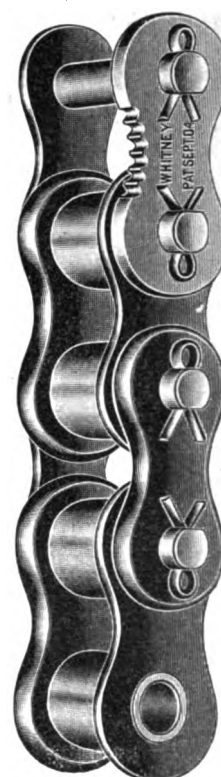


can only be obtained by the use of materials which will resist the most wear. Through our untiring efforts to produce nothing but the best and our years of experience in chain making,

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have gained a remarkable reputation for their strength, accuracy, wearing qualities and ease of repair. When making replacements try a "Whitney" chain and get acquainted with its merits.

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CONNECTICUT**

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There is more reason for buying cautiously right now than ever before in automobile history. "Consider Changing Conditions" gives the inside facts.

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should be in the hands of every live dealer—we keep you posted on all the new and practical necessities for motoring.

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are fully described in our
New Catalog 24 A

Send for it.

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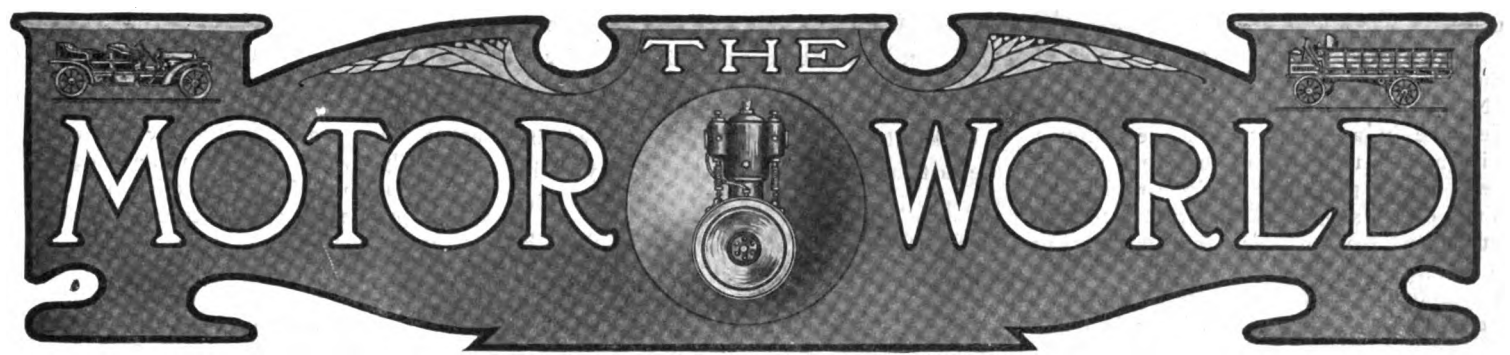
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Glass-and-Steel Spark Plugs
ANDERSON SPARK PLUG CO.
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SHAWMUT TIRES

SOLD EVERYWHERE

SHAWMUT TIRE CO., Boston, Mass.



Vol. XXIX.

New York, U. S. A., Thursday, December 21, 1911.

No. 13

METZGER AND HEWITT "UNMERGED"

Hewitt Gets Back His Truck Interests and Forms New Company—Four Millionaires Associated With Him.

Hewitt trucks have returned to their fathers, so to speak. They left them in January, 1909, when the Hewitt Motor Co., of New York, was merged with the Metzger Motor Car Co., of Detroit, although the trucks have continued to be produced by the Metzger company through its truck department in New York, of which Edward R. Hewitt, the original Hewitt engineer, has remained in charge.

When the merger was effected it proved one of the sensations of the time. It is probable that "unmerging," which was completed on Monday last, will prove equally surprising. For on that day, interests represented by Mr. Hewitt and with many millions behind them, acquired the Metzger truck department and at once filed articles of incorporation under the laws of New York for a new Hewitt Motor Co., capitalized at \$1,000,000, all in one sort of stock. There are no bonds.

The personnel of the directorate of the new company will occasion as much comment as the "unmerging" transaction itself. In addition to Mr. Hewitt, the directors are William E. Corey, E. C. Converse, M. F. Burns and Ambrose Monell.

Burns is one of the principals in the big coal firm of Burns Bros., New York, which has for some time used a large number of huge Hewitt trucks; Corey is a former president of the United States Steel Corporation, and still is a director of that organization; Converse likewise is a director in the Steel Corporation and, like Corey, is on the boards of more than a score of other important industrials; Monell is president of the Monell Metal Mfg. Co.

The plans of the new Hewitt company have been so well laid that already it has acquired a new factory and service station at West End avenue and 64th street, New

York, and as soon as the installation of machinery is completed, about January 15th next, the manufacture of Hewitt trucks, with Mr. Hewitt in entire charge, will commence.

The original Hewitt Motor Co. was one of the first to undertake the production of gasoline commercial motor vehicles and for several years it probably was the most successful builder of really heavy trucks, on which its reputation was made.

The Metzger Motor Car Co. will not wholly abandon the commercial vehicle field. It will continue to produce the lighter types.

La Croix Forms New Import Company.

Paul La Croix, who for the last six years has been vice-president and general manager of the Renault Freres Selling Branch, New York City, has formed the Paul La Croix Automobile Co., with offices and salesrooms in the Demarest building, Broadway and Fifty-seventh street. His associates in the company are Harry U. Kibbe, formerly assistant manager of the Renault branch, and Stefan Kjeldsen, at one time president of the S. P. O. Automobile Co., and later connected with Renault Freres. The new company, as a sub-agent, will handle not only the Renault and Panhard, but will have the exclusive agency for the English Daimler, Clement-Bayard, Itala and Zedel cars. The Renault branch will be continued, Norris N. Mason succeeding to the general management vacated by La Croix.

Grinnells Purchase Phipps's Holdings.

Having purchased the interests of J. G. Phipps and thereby acquired control of the Phipps-Grinnell Electric Co., of Detroit, L. L. and C. A. Grinnell have changed the title of the company to the Grinnell Electric Car Co. and will immediately proceed to enlarge the business, which heretofore has been chiefly of a local nature. C. A. Grinnell remains general manager of the company. He will be assisted by Henry Goodman, one of the veterans of the electric vehicle trade, who just has been appointed general sales manager.

BRINGS UP A THREE-POINT PATENT

Detroit Inventor Lays Claim to Rights Affecting Unit Power Plants and Seeks Tribute—Litigation Likely.

Patents applying to three-point suspension systems, the Huber patent in particular, apparently are due to receive a more or less extended legal airing. The North American Vehicle Co., of Detroit, is shaping things in that direction. It controls the Huber patent, No. 788,407, issued April 25, 1905, to Emil Huber, who is a member of the North American company, although at present in the employ of the Hudson Motor Car Co., of Detroit.

The North American itself builds no vehicles, despite its name; it merely is a patent-holding and patent-operating company incorporated two months ago under the laws of Michigan, with \$10,000 in capital stock, \$9,600 of which is held by Huber, as trustee. Henry C. Ide, a physician, is its president, and Thomas J. Clinton, a real estate man, its secretary-treasurer. J. Emmet Sullivan, an attorney, holds the other share. They have served notice on several manufacturers that unless the Huber patent is recognized and royalties are forthcoming they will take steps to enforce their claim in the matter.

Summarized, the North American company claims that the Huber patent covers "any driving mechanism of an automobile wherein the parts that go to make up the same are brought together in what is termed a unit power plant, suspended at three points upon the main frame, and wherein one of the points forming the triangle is arranged to swivel."

In presenting Huber's case, Attorney Sullivan cites three earlier patents, issued respectively to T. French, January 9, 1900, to A. B. Fowler, January 7, 1902, and to Paul Synnestvedt, February 18, 1902, all of which he asserts "are purely axle propositions for the support or suspension of the sub-frame." All were lacking in practi-

THE MOTOR WORLD

HAVE NOT RESIGNED, SAYS FLANDERS

Sets at Rest Reports Affecting His Connection With Studebaker—Six-Cylinder Car Wrapped in Mystery.

Undoubtedly due to the facts that within the last month Walter E. Flanders, who is vice-president and general manager in charge of the Studebaker Corporation automobile interest, assumed the presidency of his own company, the Flanders Mfg. Co., of Pontiac, Mich., and that the Studebaker directors had created the new office of general manager of the entire corporation and filled it by the appointment of J. N. Gunn, the report has run the length and breadth of the trade that Flanders had been displaced, or had resigned or intended to resign his office in the Studebaker Corporation.

When early this week the report was carried to Flanders himself by a Motor World man, he promptly and positively denied its truth. He said that he has not only not resigned from the Studebaker Corporation, but that he has no intention of doing so. He branded the rumor as absolutely false.

Preceding these reports affecting Flanders and following them, another story has been current to the effect that the Studebaker Corporation was developing a popular price six-cylinder car which shortly would be placed on the market, and regarding which there appears to be a conflict of opinion. Apparent substance was given to the story by the fact that a six-cylinder car, which not a few people termed the "Studebaker Six," has been running around the streets of Detroit and which it was known was developed by some of those who are or who had been associated with Mr. Flanders in one or the other of his enterprises. Despite the fact, however, Scott Brown, secretary of the Studebaker Corporation, disowned the Detroit-made car and stated last week in reply to the direct question from a Motor World man that the company had not developed a "six" and had no present intention of placing one on the market; and there the story rests.

Creditor Seeks to Find Correja Property.

When on August 8th last, the La Hacienda Co., of New York, obtained a judgment for \$326.46 against the Correja Motor Car Co., also of New York, it had some expectations of collecting the money. That these expectations, however, came to naught, was disclosed yesterday, when Justice Giegerich of the New York Supreme Court issued an order directing J. Mora Boyle, president; E. M. Boyle, secretary, and James W. Boyle, a director of the Correja company, to appear before him on December 28th, next, and tell under

oath what has become of the property of the defendant company.

From the papers on file in the Supreme Court it appears that the sheriff endeavored to collect the amount of the judgment, but that his efforts were "wholly unsatisfactory" and that E. Mortimer Boyle, who personally was named in the judgment, "cannot be found." As there is some doubt as to the present whereabouts of the officers of the company, the court order was served on the attorneys for the Correja company and directs them to cause the appearance of the judgment debtors.

Company Formed to Make Lewis Truck.

To manufacture a truck designed by Charles B. Lewis, which has stood the experimental test during the past year, the Lewis Motor Co. has been organized in San Francisco and opened offices in the Merchants Exchange Bldg. It is stated that a factory already had been secured and that manufacturing operations will begin as soon as the necessary machinery is installed. The officers of the company are: Gustave Brenner, president; Charles B. Lewis, vice-president and manager; Jacob Samuels, secretary; J. H. Baxtor and Louis G. Henes, directors. The Lewis truck will be made in four sizes: A light delivery, a two-ton, four-ton and six-ton.

Delay Gives Williams Judgment by Default.

As a result of a disputed account, judgment for \$2,794.36 in favor of J. H. Williams & Co., the Brooklyn drop forgers, against the Palmer & Singer Mfg. Co. was entered in the New York Supreme Court on Saturday last, December 16. The amount represents principal, interest and costs for merchandise delivered between January 1, 1910, and August 1, 1911. Judgment was taken by default, the Palmer & Singer Co. failing to put in an appearance owing to oversight of its legal representatives, who filed their answer to the Williams action two days after the legal limit had expired.

Diamond Opens Four More Branches.

Four new branches have been opened in the South and Middle West by the Diamond Rubber Co. They are located at 1316 Grand avenue, Kansas City; 910 Broadway, Nashville, Tenn.; 229 Tryon street, Charlotte, N. C., and 427 S. Twentieth street, Birmingham, Ala. In Kansas City Diamond tires previously were handled by the Gustin-Bacon Mfg. Co., which hereafter will deal in tires and accessories generally on a jobbing basis.

Nyberg Arouses High Hopes in Atlanta.

Henry Nyberg, president of the Nyberg Automobile Works, of Anderson, visited Atlanta, Ga., and said something that induced the Georgians to believe that he will establish a branch factory in that city. One of the Atlanta papers says it will be a large factory.

cability, he contends, and it was Huber who solved the problem by "suspending the sub-frame carrying the driving mechanism on the main frame" by three points, one of which is adapted to swivel.

Not all other patent lawyers, however, are in agreement with the Sullivan opinion. Some of them hold that a sub-frame to support the driving mechanism is the entire subject matter of the Huber patent, and that an engine bed which may be mounted on three points, two of which are rigidly connected with the main frame, does not constitute infringement. As these opinions have been rendered to manufacturers on whom the North American company has served notice "to step up to the captain's office," it implies that the Huber interests will have to prove their claims by the long and expensive process of law before they will be recognized.

Atlas Not to Abandon Two-Cycle Cars.

Though it might perhaps be inferred by the action of the Atlas Motor Car Co., of Springfield, Mass., in introducing a new Knight-engined car that it proposed abandoning the manufacture of the two-cycle cars which have constituted its principal field of endeavor in the past, such is not the case, the Atlas people state. The two-cycle cars will be continued for the present, at least, the new car being an addition to the line. Though the Knight engine itself is no novelty, nor are the other unusual features of the new car, the combination of left-hand steer and center control, the worm driven rear axle in which is incorporated the change gear mechanism and a motor-dynamo engine starting and lighting system are sufficiently novel to be notable. The motor will have four cylinders and will be built only in one size, namely, 4½ inches bore and 5½ inches stroke. The car, however, will be made in two sizes, five and seven passengers capacity. The former will sell for \$3,500 completely equipped, and the price of the larger car will be \$3,700.

Mooers to Produce a \$2,000 "Six."

Louis P. Mooers, one of the early workers in the vineyard, who had a hand in designing several well-known cars and who, with H. D. Michaels, a New York broker, recently organized the Mooers Automobile Co., has leased factory quarters in the Ter-radelpia building in Trenton, N. J., where operations will commence during the first week in January. The Mooers car, which will be largely an assembled product, will be a six-cylinder model, with a list price of \$2,000.

Another Carriage House Takes Up Trucks.

Caley & Nash, of Rochester, N. Y., who have been building horse-drawn carriages and wagons, have added a gasoline delivery vehicle to their productions. They recently erected a two-story addition, 80 x 100 feet, to their plant, which will permit them to take care of their new wagon.

CREDIT PLAN IS RE-INTERPRETED

Misunderstanding Caused by Studebaker Announcement is Cleared Up—Buyers Still Must Pay Cash.

Because of misunderstandings which were conveyed by the announcement of the adoption of a credit system by the Studebaker Corporation, which misunderstandings existed even within the Studebaker ranks, it has been necessary to freshly interpret it for the benefit of those in whose minds it had become confused. This "fresh interpretation" was issued late last week by Walter E. Flanders, vice-president of the Studebaker Corporation, in a public statement that conveyed its own suggestions.

"Without regard to what it may seem wise to do in the future or my personal judgment as to the ultimate trend of the industry," he said, "we simply have made it possible for our dealers to buy their cars earlier and to make earlier sales and prompt deliveries by helping them to carry a portion of their account for a short time on credit."

When further information was sought and he was asked whether this statement implied that the credit system as announced had been changed or altered in any way, E. Leroy Pelletier, than whom none is closer to Flanders, said that such was not the case. Despite the general belief to the contrary, Pelletier, without a smile, stated that it never was the intention to accept notes from farmers, doctors, etc., and that the plan has to do exclusively with dealers whose notes are the only ones that will be accepted and then only when they are financially responsible or the security offered is ample and beyond question.

"We might, as a special accommodation to a dealer of this sort," added Pelletier, "accept the note of a farmer or a doctor when it is endorsed by the dealer himself, and backed by ample collateral, but in that event the notes would represent only a part of the cost of the car, and we would reserve the right to decide how and when and where such accommodation shall be extended."

Studebaker cars still are being shipped sight draft attached to bill of lading, though in some special cases it may be arranged that a draft shall read half cash and half notes, which notes, however, must be the dealer's own notes.

Asked if the new plan embraced the abandonment of the deposit system, Pelletier replied that the deposit system had been discontinued a year ago, that is to say, the only deposit now required merely is a sum sufficient to guarantee the respective dealers' parts accounts so that parts for repairs or replacements can be shipped

immediately on receipt of even a telegraph order.

New Yorkers Acquire Detroit Truck Plant.

Interests represented by Howard W. Walton, president of the Universal Motor Truck Co., of New York, metropolitan agents for the truck of that name, have purchased, lock, stock and barrel, the Universal Motor Truck Co., of Detroit, which manufactures the truck and which is capitalized at \$350,000. The deal was consummated early this week, and while the plans are carefully guarded, it is likely that they will cause surprise when they are unfolded. Other than to admit that they are New Yorkers, Walton will not disclose the identity of the real purchasers; they will not even be made plain when new officers are elected, as the officers will be merely the purchasers' representatives. But practically unlimited capital is in hand and it is the intention to make the Universal establishment one of the biggest in the truck industry. Its present factory in Detroit occupies a city block but it will be greatly enlarged. The members of the Universal company who disposed of their holdings are C. H. Haberkorn, C. B. Culbertson, August Kling, A. E. Barker, George Uhlein and Louis Camper.

Lozier Wins First Round of Big Suit.

Supreme Court Justice Cohalan, on Tuesday last, granted the plea of Harry A. Lozier, asking that Fletcher R. Williams and Joseph L. Rhinock be compelled to furnish a bill of particulars in their sensational suit against Lozier and the Lozier Motor Co. The only new development brought out in the argument was that George B. Cox, the one-time political boss of Cincinnati, Ohio, was the moneyed man whom Fletcher R. Williams claims to have interested—at the alleged request of Harry A. Lozier—to the extent of \$300,000, while Williams himself was to have added \$200,000 of his own money. When the negotiations failed Williams instituted a suit for \$500,000 damages against Lozier, while Rhinock, a broker, sued for \$150,000 for services alleged to have been rendered by him to Lozier, in introducing Williams to the automobile manufacturer. In his answer to the bill of complaint Harry A. Lozier asked that the complainants be compelled to make their claims for alleged damages more specific, and it is this request that the New York court has granted.

To Represent Studebaker in Japan.

Kaju Nakamura, a native Japanese automobile dealer, who has served an apprenticeship in the Studebaker factory in Detroit, is booked to sail to his native country from Seattle on the 30th inst., where he will act as the official representative of the Studebaker Corporation. He will be accompanied by J. B. Crockett, of Detroit, and together they will take up the work of placing agencies in both Japan and China.

U. S. MOTOR RE-ELECTS OFFICIALS

Selection of One New Director Only Change Made at Annual Meeting—Report Shows Surplus of \$453,748.

Excepting only that J. W. Stoddard was chosen to succeed H. J. Edwards as a member of the board of directors, the incumbent officials of the United States Motor Co. were re-elected at the annual meeting of that big corporation, which occurred in Jersey City on Tuesday last. They are as follows:

Officers: President, Benj. Briscoe; first vice-president, C. G. Stoddard; second vice-president, J. D. Maxwell; vice-presidents: Horace DeLisser, Frank Briscoe, Alfred Reeves, J. W. Wellington; secretary, F. D. Dorman; treasurer, Carl Tucker; assistant treasurer, J. M. Edsall.

Directors: J. C. Brady, Benj. Briscoe, Frank Briscoe, Richard Irvin, Herbert Lloyd, Edgar J. Meyer, J. D. Maxwell, Eugene Meyer, Jr., O. J. Mulford, H. W. Nuckols, R. A. Robertson, K. B. Schley, C. G. Stoddard, J. W. Stoddard.

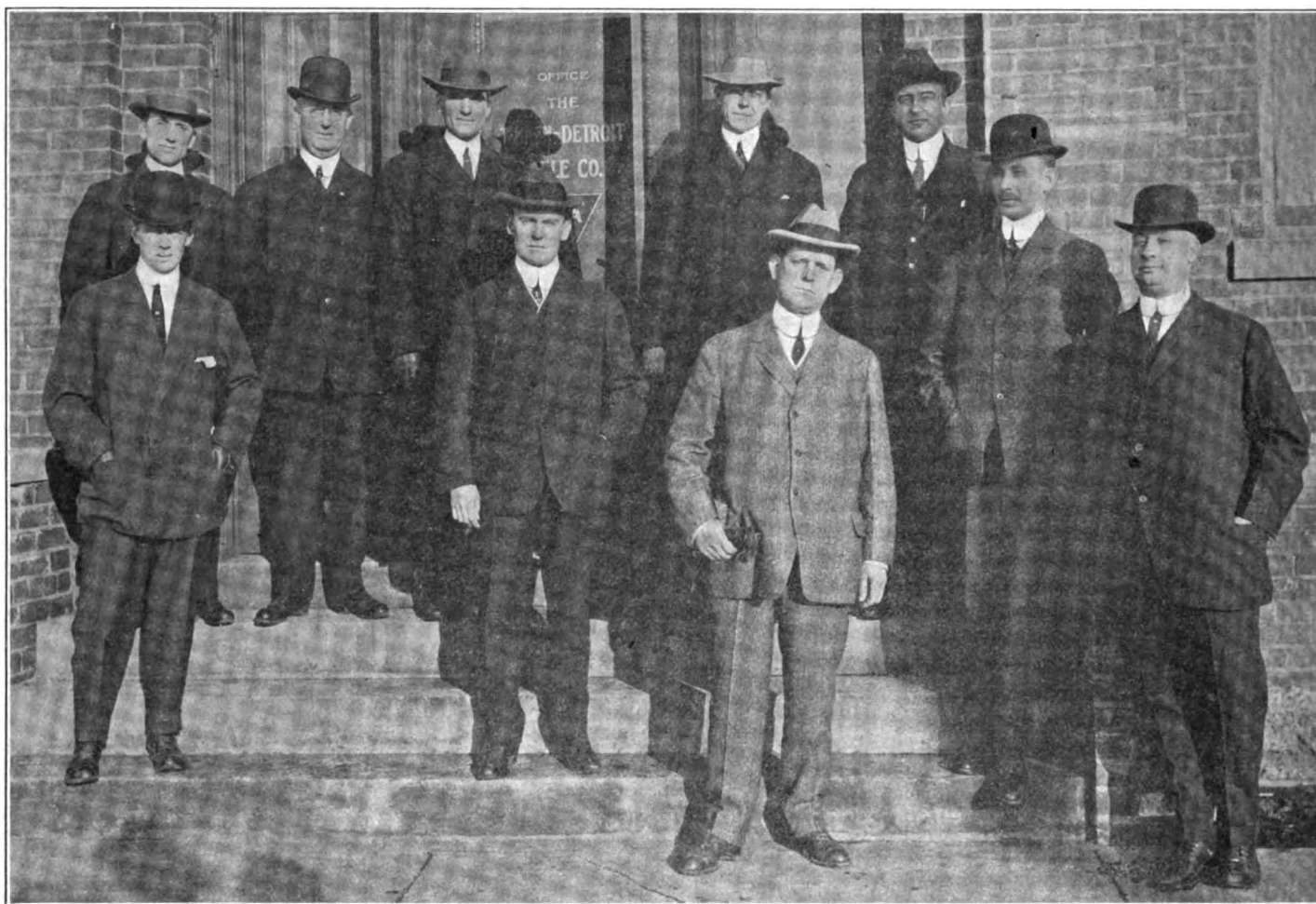
The report for the year ended July 31st last shows net profits of \$2,040,256; deduct interest, \$488,065; dividends, \$738,411; total interest and dividends, \$1,226,476; balance, \$1,098,092; amount written off, \$644,344; net surplus for year, \$453,748.

In rendering this report, the full details of which have not yet been put into print, President Briscoe in commenting on the net surplus stated that the outlook for 1912 is much brighter and a gross business of \$31,000,000 is expected. Orders now on the books are sufficient to keep plants active for at least two months. The showing of the past year is attributed by Mr. Briscoe to the strong antipathy of bankers toward the automobile industry.

Kansas City Taxicab Enterprise Enmeshed.

Due to the efforts of the city council of Kansas City to have the taxicab fares reduced, the Blue Taxicab & Baggage Co., which had been formed in that city six months ago and acquired valuable franchises, found it impossible to carry on its stock selling campaign and landed in the bankruptcy court on Thursday last, 14th inst. The small sum of \$152, due to the Faeth Iron Co., was the proverbial straw that broke the camel's back. The total liabilities of the company are placed at over \$40,000, with assets of at least equal value. J. D. Anderson, formerly president of the Park National Bank, has been appointed receiver, and an injunction has been issued restraining the creditors of the company from in any way interfering with the property or the receivership. Practically all the indebtedness is due to money borrowed from banks to pay for motor trucks and taxicabs.

MEN WHO SELL TIMKEN PRODUCTS WHO WERE PRESENT AT FIRST CONFERENCE



Though the practice of a number of the big companies connected with the automobile industry, of holding annual or semi-annual gatherings of their traveling salesmen and other representatives, is a fairly common one, officials of the allied Timken companies, the Timken-Detroit Axle Co. and the Timken Roller Bearing Co., have gone just a step further and have inaugur-

ated quarterly conferences as a regular feature. The first of these was held on the 5th and 6th inst., and though the two days were devoted almost entirely to business, time was taken for a theater party after a dinner on the first day; luncheon, the same day, was served at the Wolverine Automobile Club. Later, they faced the camera, the result of which is portrayed by the ac-

companied picture. It shows E. B. Lauser, E. E. Gordon, H. J. Porter, T. W. Hood, and T. W. Doyle of the sales department, E. W. Lewis, secretary-treasurer of the Timken-Detroit Axle Co.; F. C. Gilbert, assistant secretary of the same company; Herman Ely, secretary-treasurer of the Timken Roller Bearing Co., and E. A. Walton, advertising manager for both firms.

Flying Rim Cause of \$25,000 Law Suit.

One of the most unusual automobile accidents that ever occurred forms the basis of a damage suit for \$25,000, which James B. Stiles has filed in the New York Supreme Court against the Lozier Motor Co., and Robert Kamber, of New York, for injuries alleged to have been received on June 29, 1910. According to the complaint, Stiles was walking or standing on the sidewalk opposite the Lozier showrooms, at Broadway and 56th street, when a "heavy rim or similar attachment of one of the wheels" of an automobile was hurled across the street, striking him and causing painful injuries. In his complaint Stiles declares that the car from which the rim came, belonged to Robert Kamber, and that at the moment of Stiles's passing, the chauffeur of the car was engaged in removing the rim "or attachment" in such

forcible manner that it flew across the street "with considerable energy" and struck the plaintiff. For the injuries alleged to have been sustained, Stiles thinks a balm to the amount of \$25,000 will be about right.

De Tamble Adds to Its Facilities.

The De Tamble Motors Co., of Anderson, Ind., is building an addition to its plant which will provide 30,000 feet more floor space. A large purchase of new machinery also is being installed, which improvements will permit the company practically to double its manufacturing capacity.

Preferred Stock For Watt Carburetter.

The Watt Carburetter Co., of Holly, Mich., has amended its articles of incorporation by providing for a \$50,000 issue of

preferred stock. This will be in addition to the \$100,000 common stock already provided for.

Seventeen New Solar Lamps in Sight.

No less than 17 new and distinctive styles of Solar lamps have been added to the Badger Brass Mfg. Co.'s line for 1912. They comprise two gas headlights, four electric headlights, one electric searchlight, one small electric searchlight, to be mounted on the steering column, two electric combination oil and electric side lights, four electric side lights, one combination oil and electric fender tail lamp, one electric tail lamp and one hexagon tapered-shaped electric limousine lamp. The Solar-clipse headlights and several of the standard Solar side and tail lamps, both oil and electric, will remain part of the Badger line.

OLD TRADESMEN IN NEW PLACES

Most of Them Attain to Higher Positions
—Kennedy Becomes Head of Alco
Transportation Cost Bureau.

George E. Messer has resigned the management of the Syracuse, N. Y., branch of the Franklin Automobile Co. He has gone into the paper business.

Horace Mills, formerly a member of the firm of Mills & Rockwell, of Detroit, has joined the staff of the Westinghouse Co. He will be the manager of its automobile department.

Nelson Gottshall, who sold Lozier and Detroit cars in Denver, Colo., under the style Krebs-Gottshall, has been added to the traveling force of the Lozier Motor Co., of Detroit. He will cover the Rocky Mountain territory.

F. I. Blake has resigned the factory management of the Alden Sampson Mfg. Co., of Detroit. P. H. Breed, chief engineer of the company, is now acting as factory manager, uniting with that office his duties as chief engineer.

J. F. Gfrorer has been appointed chief of the Alco service department of the American Locomotive Co. Gfrorer, who has been connected with the industry for some eight years, has latterly been doing special work for the Alco people.

Leonard W. Williams, at one time connected with the Philadelphia branch of the Locomobile Co. of America, and more recently manager of its Oakland (Cal.) branch, has been transferred to the factory in Bridgeport, Conn. His particular duties will be in the advertising department.

The Streater Motor Car Co., maker of the Halladay car, has added three new men to its traveling staff. They are L. W. Thompson, who will cover Oklahoma and part of Kansas; C. R. Riley, who will travel part of Iowa, and F. S. Van Veghten, who will represent the Halladay interests in the State of Nebraska.

W. S. Stevenson, sales manager for the Mack Motor Car Co., of Allentown, Pa., has been appointed general sales manager for the International Motor Co., which recently took over the plant of the Mack and Saurer companies. His appointment carries with it removal from Allentown to the International headquarters in New York.

W. P. Kennedy has been appointed head of the transportation cost bureau which has just been established by the American Locomotive Co. in connection with its motor truck department. Kennedy, who has been identified with the automobile business for twelve years, is one of the most experienced and best known transportation engineers in the country.

W. F. Byrket, of Newcastle, Ind., has been appointed to the management of the United

Motor Indianapolis Co. He takes the place of Thomas L. Marshall, who has been promoted to the post of assistant superintendent of the central sales district, embracing the majority of the Central States. Byrket only recently returned from an extended trip to Europe, where he investigated trade conditions in England, France and Germany.

Frank H. Smith, who for two years has been keeping tabs on the efficiency of the various Studebaker branches, has been appointed manager of the automobile division of the Minneapolis branch of the Studebaker Corporation. He takes with him as assistant manager, D. D. Byers, who for several years has been in the accounting and sales departments of the Detroit factory.

New Men Enter Batavia Solid Tires.

New men and capital having been interested, the Batavia Rubber Co., of Batavia, N. Y., has increased its capital stock from \$70,000 to \$500,000, and will at once proceed to greater things. The new men who have entered the company are: Charles R. Rogers and D. E. Carpenter, of New York City, and John W. Mullin, of Morganville, N. Y., who, with Ashton W. Caney and George E. Perrin, constitute the new board of directors. Caney will remain vice-president of the company and Perrin, secretary-treasurer. A new president, however, will be chosen to succeed John H. Ward. He has not yet been elected, but it is understood that he will be a financier of some prominence in New York City. With the fresh capital secured, the factory will be enlarged and it will go more heavily into the production of solid rubber tires.

Lauth-Juergens to Triple Production.

The Lauth-Juergens Motor Car Co. has placed contracts for the erection of a 520 x 60-foot addition to its factory in Fremont, O. The enlargement will be devoted to assembling and body building work. Still another building will be erected in the Spring which, with the three buildings already occupied, will permit the output of Lauth-Juergens trucks to be tripled within the next twelve months.

Chalmers Taking Up Truck Manufacture.

Its new six-cylinder touring car now being ready for market, the Chalmers Motor Co., of Detroit, is about to take up the manufacture of trucks. It already quietly has produced several light delivery wagons and is understood to be experimenting with a five-ton truck.

Simplex Secures Service Structure Site.

Like the Packard, Alco and Ford companies, the Simplex Automobile Co., of New York, will erect a big service building on the opposite side of the East river in Long Island City. The site for the purpose has been secured on Webster avenue and Pomeroy street.

THOMAS SUES A SURETY COMPANY

Wants Judgment Against S. & V. Company
Paid—Countersuit Pending Based on
Dealer's Agreement.

An echo of the suit of the E. R. Thomas Motor Branch Co., of New York City, against the S. & V. Motor Co., of 312 Livingston street, Brooklyn, N. Y., which was decided in favor of the Thomas company on July 21, last, was heard yesterday (Wednesday) in Part II of the Trial Term of the New York Supreme Court, before Judge Erlanger, the title of the suit being E. R. Thomas Motor Branch Co. vs. United States Fidelity and Guaranty Co. The basis of the suit is the judgment for \$3,329.87 obtained by the Thomas company against the S. & V. company on July 21, for which judgment the Fidelity and Guaranty company had assumed warranty. Argument in the suit was postponed until January 3, 1912.

The dispute between the companies hinges upon a dealer's agreement said to have been made by them in 1909. According to this agreement the Thomas company contracted to furnish the S. & V. company with the required number of cars at discounts varying from 12½ to 20 per cent. on the listed prices, and not to invade the territory of the S. & V. company—Kings County—with its own sales. A Thomas car listed at \$4,000 was sold by the S. & V. company, but the money, less discount, was not paid to the Thomas concern, which brought suit for the amount and obtained a judgment on July 21, 1911.

While this suit was pending, the S. & V. company filed a counter suit for \$8,000 damages alleged to have been sustained by it, by reason of the Thomas company invading its territory and selling ten Thomas cars in Brooklyn and Kings, and depriving the S. & V. company of its commission of 20 per cent. per car. Before this suit came up for trial, the claim was transferred, "for a good and valuable consideration," to the United States Fidelity & Guaranty Co., which signed an agreement to pay any judgment which the Thomas company might obtain against S. & V., not exceeding \$3,500. When the judgment was rendered in favor of the Thomas company, the guaranty company declined to pay and pressed its countersuit for \$8,000. Thereupon the Thomas company promptly filed suit against the Title & Guaranty company to compel it to carry out the agreement.

In the bill of complaint filed by the attorneys for the E. R. Thomas Motor Branch Co., particular stress is laid upon the fact that the president of the S. & V. Motor Co. is attorney for the U. S. Fidelity & Guaranty Co. Since the proceedings were instituted, the S. & V. company has retired from business.

FRANKLIN DISCONTINUES BRANCHES

Finds Working of Long Distance Control Unsatisfactory—Four of the Managers Who Have Become Dealers.

Having convinced itself and been convinced by most of its branch managers that a "free" agent usually is more desirable than an attache connected and restricted by long distance strings to the factory, the Franklin Automobile Co., of Syracuse, N. Y., is practically discontinuing its system of branch houses. In doing so it is making it possible for at least its veterans in the Franklin service to acquire the stores they have conducted and to continue the business without interruption, but on their own respective accounts and responsibilities, and as free agents. About a month since O. A. Lawton took over the Boston branch; two weeks ago George Ostrander acquired the Buffalo establishment which he had managed, and last week the New York store at Broadway and 73d street became the property of G. A. Tisdale, who for three years has represented the taxicab department of the Franklin company, while John C. Kerwin assumed charge of the repair shop at 242 West 80th street. At about the same time the Pittsburgh branch at 5926 Baum street passed into the hands of W. Murray Carr, another Franklin veteran. In each case the business will be continued at the former addresses.

Two Shows for Buffalo and the Reason.

In addition to the "regular" exhibit in the 74th Regiment Armory, Buffalo, N. Y., scheduled for the week December 30 to January 6, under the auspices of the Buffalo Automobile Trade Association, a second one is to be held during the week of February 5, 1912, in Convention Hall. George C. Fehrman, whose name is the only one to appear on the printed matter issued by the promoters, and who signs himself as its manager, gives as the reasons for holding the second show "the opinion of many of the local dealers that the first show is held too early," and that "many of the manufacturers have not completed their 1912 show models and will not have them available until after the New York show in Madison Square Garden."

Belgium Exports Take Boomlike Turn.

Although few, even well-informed, Americans credit Belgium with being an important manufacturing country, it is nevertheless a fact that its exports of automobiles are increasing in leaps and bounds. During the first nine months of 1911 this small country exported motor cars valued at 15,203,000 francs, or about \$3,040,000, as compared with \$1,400,000 in the same period of 1910, and \$1,000,000 in 1909. England and Germany are Belgium's best

customers, the former taking \$1,088,000 worth and the latter \$260,000 worth of cars.

Stuyvesant Enlarges Capital and Plant.

The Stuyvesant Motor Car Co., of Cleveland, Ohio, has taken over the Grant-Lees Machine Co. of that city, and having increased its capital stock to \$350,000, it is now proceeding to become a factor in the trade which must be reckoned with. Ground has been broken for a new building adjoining the Grant-Lees plant at Quincy avenue and East 69th street, and when it is completed the Stuyvesant company will remove from the west side to the east side of the city. The new structure will be 120 feet square and four stories high.

New Carburetter Coming from Oshkosh.

Leo J. McKone, of Oshkosh, Wis., who is the proprietor of the McKone Automobile and Repair Co., is forming a company for the manufacture of a carburetter of his own invention, several of which have been put to the test. The McKone carburetter is a springless device which is described as "virtually two carburetters in one," and is claimed to be almost as well adapted to kerosene as to gasoline.

Show Association Chooses Officials.

J. J. Deright, Omaha, Neb., has been elected president of the Omaha Automobile Show Association. The other officers are: Vice-president, J. T. Stewart; secretary and treasurer, Clark G. Powell; directors, the officers, Guy L. Smith and Denise Barkalow. Powell has been made manager of the 1912 show, which will be held in the latter part of February.

Detroit Body Builders Get More Room.

Knell & Adams, who operate a body building plant at 1020-1030 Beaufait street, Detroit, Mich., have purchased a two-story factory building at 1039-1043 Jefferson avenue, in that city, which after alterations are completed will be maintained in addition to their present place. The acquisition will permit their output to be about doubled.

Carriage Dealers Court Automobile Agents.

Although the automobile dealers of Philadelphia have an organization of their own, the Philadelphia Carriage and Wagon Association has altered its title to permit its membership to include automobile dealers. The revised name of the organization is the Philadelphia Carriage, Wagon and Motor Vehicle Association.

Final Melting of New Process Steel.

The New Process Steel Co., of Marshall Mich., a \$75,000 corporation which manufactured steel casting for automobiles, is being dissolved. The venture was not a paying one and in order to stop the loss, the directors applied for the appointment of a receiver who is performing the last sad rites.

DEALER AND CUSTOMER AT ODDS

Second-Hand Car Problem in Law Suit—Conflicting Claims Finally Settled Amicably Out of Court.

While the suit of John W. Devoy against the Sidney B. Bowman Auto Co., of 225 West 49th street, New York City, did not come to trial when it was called on Monday last and the warring parties agreed to settle their quarrel out of court, enough details of the action were disclosed to render the case of more than cursory interest. According to Devoy's complaint he turned over to the Bowman company a Clement-Bayard car of early vintage, to be sold on commission of 5 per cent., which car the company did sell for \$800, which money Devoy claimed was not turned over to him.

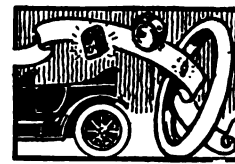
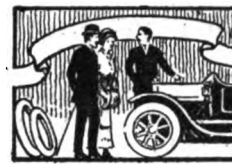
In his answer to the complaint, Sidney B. Bowman alleged that Devoy had agreed to buy from him a Marmon car for \$2,800, provided the Clement-Bayard car was sold for \$800 or more, and that the money received for it was to be part of the purchase price of the Marmon. After the foreign car had been sold, Devoy failed to carry out his agreement to buy the Marmon and asked for the \$760 due him. The Bowman company not only refused to pay over this money, but filed a bill for storage charges, repair costs and similar items, amounting to about \$150, and a counterclaim for \$2,000 due on the purchase price of the Marmon which had been ordered from the factory. The terms on which peace was concluded were not disclosed.

Drops Motor Buggies for Touring Cars.

The Corbitt Automobile Co., of Henderson, N. C., which is an outgrowth of the Corbitt Buggy Co., and which recently was incorporated with \$250,000 capital stock, has undertaken the production of a conventional four-cylinder touring car. It will have a 120-inch wheel base, 56-inch tread and 34 x 4-inch wheels fitted with demountable rims. Its equipment will include an electric lighting apparatus and an automatic engine starter. Heretofore the Corbitt company has manufactured a motor buggy in connection with its horse-drawn vehicles.

Motor Club Becomes Dealers' Association.

At the annual meeting of the Minneapolis (Minn.) Motor Club held Tuesday, December 5, it was decided to change the name of the organization to the Minneapolis Automobile Dealers' Association, under which title the annual show will be held in the Auditorium January 29 to February 3. Both pleasure cars and commercial vehicles will be displayed. The election of officers for the coming year has been postponed until January 5.



P. C. Creso is building a garage at 221 South K. street, Tacoma, Wash., at a cost of \$4,500.

George R. Long is building a garage on Main street, Warsaw, N. Y. It will be 50 x 130 feet.

Wilmont, Minn., soon will have a garage and automobile salesroom. Peter Spartz is building it.

Elizabeth J. Yoa is building a garage at 1050 South Clinton street, Syracuse, N. Y., at a cost of \$8,000.

Albert E. Elser is erecting a garage at 633 Lake Drive, Milwaukee, Wis., at a total cost of \$4,000.

Owen Mon, Jr., is building a garage at 314-316 East State street, Trenton, N. J. It will represent an expenditure of \$5,000.

Bernhard Rosenberg has broken ground for a two-story brick garage at 4815 Drexel boulevard, Chicago, Ill. It will cost \$8,000.

J. B. Newman, of Santa Monica, Cal., is erecting a two-story brick garage at 311 Spring street. It will cost, when complete, \$7,000.

Wallace Everson has broken ground for a brick garage at Twenty-second street and Broadway, Oakland, Cal. It will cost \$11,000.

Struve & Worth, who conducted a machinery warehouse, have converted it into a garage. They will add a repair establishment.

J. D. and M. W. Woodsides are preparing to open a garage and salesroom in Charlotte, N. C. They will handle E-M-F and Flanders cars.

The Fountain City Garage Co. has taken possession of its new garage in Fond du Lac, Wis. It is a two-story, fireproof, post-less structure, 40 x 115 feet.

A one-story brick garage is in course of erection at the corner of Atlantic and Chelsea avenues, Atlantic City, N. J., which, when finished, will be occupied by Ryon & Collins.

Van Deman & Wainwright is the style of a new firm which has "opened up" in Newark, N. J., at the corner of Halsey and Canfield streets. They will handle Abbott-Detroit cars.

T. T. Bergh, of Spring Grove, Minn., has purchased the Park Roller Rink in La Crosse, Minn., and is remodeling it into a garage. He expects to start a renting and repairing business.

Clark A. Sanford, editor of the Catskill Mountain News, at Margaretville, N. Y., has gone into the automobile business also. He has opened a garage, 100 x 45 feet, ad-

joining the "News" office, and will sell E-M-F, Flanders and Ford cars, under the style the Sanford Auto Co.

L. B. Saunders, a Grand Rapids (Mich.) alderman, has gone into the garage business. He is building one at the corner of Division and Pleasant streets, to be 70x100 feet, of concrete construction.

S. A. Foster & Co., who are handling American, Rambler and Regal cars in Hartford, Conn., are building a new garage and salesroom at 18-20 Elm street. It will be ready for occupancy on January 1.

The Stanley Steam Car Co. has been organized in San Francisco, Cal., by L. H. Austin and C. E. Bennett, both of Bakersfield, Cal. As the name implies, the company will handle the Stanley steamer.

C. F. Miller, of Defiance, Ohio, has purchased an interest in the Jefferson Garage, in Bryan, Ohio, from its former owner, H. E. Throne. Miller will handle the repair department and Throne the sales room.

The Tri-State Auto & Supply Co., of Los Angeles, Cal., having found its old quarters too small, has removed to 1017 South Olive street, where more room has been obtained. M. C. Mason is the manager of the establishment.

The J. I. Case Co., of Racine, Wis., has invaded New York City and opened a branch at 1860 Broadway, in charge of O. A. Lewellen. The company also is preparing to establish a big service building in Long Island City.

Edward Rigg, who for some years conducted a garage at Petoskey, Mich., has disposed of his business to John L. A. Galster, Owen McMahon and C. A. Lovelace. They will do business under the style Northern Auto & Machine Co.

The Spokane Auto Co. is the style of a new concern which has opened a salesroom at 109 Pacific avenue, in Spokane, Wash. E. C. Finlay, formerly president of the Regal Garage Co., and H. B. Annable, of Detroit, comprise the company.

Robert Sherwood, who for several years has been employed in garages in Cleveland, Ohio, has gone into business on his own account in his home town, Painesville, in the same State. He has taken the agency for E-M-F, Flanders and Rambler cars.

Under the style the Beaver Auto Repair Co., a new concern has opened up in Philadelphia, Pa., with William Veis and H. A. Wenkenbach as the moving spirits. The company is erecting a two-story garage in the rear of the Wenkenbach wagon factory,

facing on Orianna street, which will cost, when completed, \$25,000.

The Schildwachter Carriage Co., 249-253 West 57th street, New York, which has the metropolitan distributing agency for McIntyre power wagons, has added the Sternberg line of heavy trucks to its offerings. It will have the Sternberg representation for the entire eastern part of the country.

The International Automobile Co., which was incorporated last week in Moncton, New Brunswick, with a capital of \$50,000, has taken over the business of Carter & McDonald, who conducted a garage and salesroom in the Canadian town. R. C. Bacon and F. L. Crandall are the moving spirits in the enterprise.

William Parkinson, who operates a garage at 29 Washington place, East Orange, N. J., where he sells Overland cars, has invaded the metropolitan field and opened a salesroom at 1755 Broadway, New York. He has secured the distributing agency for Stutz cars and will do business under the style the Stutz Motor Car Co.

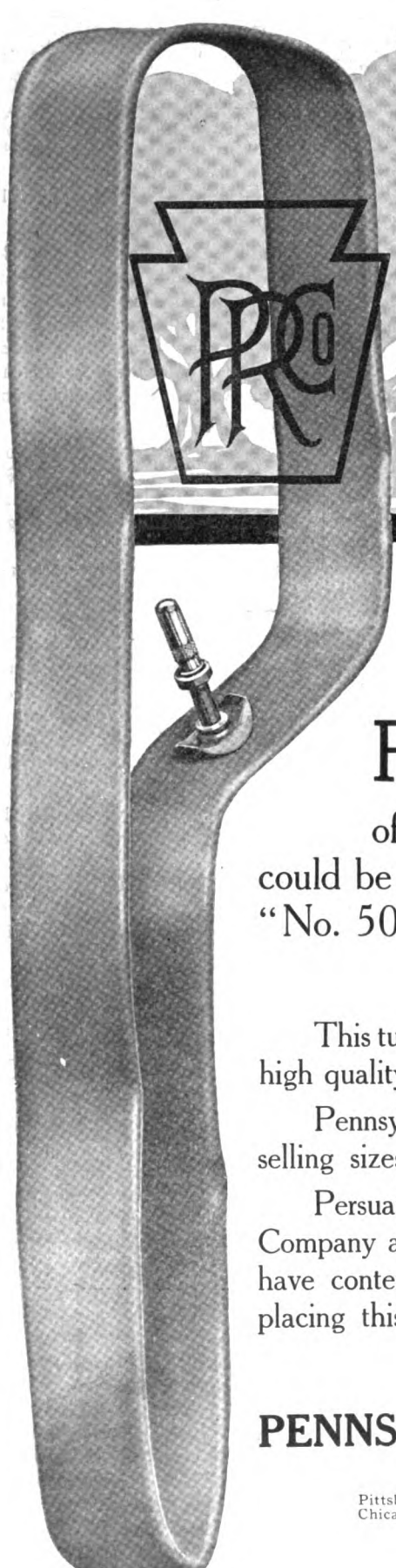
The Newton-Humphreyville Co., distributor of Thomas and Everitt cars for the State of New Jersey, has opened new salesrooms at 124 Washington street, Newark. Temporarily it will share the quarters with the Ellis Motor Car Co., until the latter's new show rooms in the Pierce-Arrow building at Central avenue and New street are completed.

A. J. P. Bertschy, formerly secretary and manager of the Bertschy Motor Co., of Council Bluffs, Ia., has formed the Bertschy Motor Co. of Omaha, of which he will be the manager. He retains his stock in the Council Bluffs concern, but has transferred its management to Harry Searle and Frank Children. The new company will carry on a general repair business, specializing in an autogenous welding process invented by Bertschy.

In connection with its salesroom for Detroit electric trucks and garage for commercial vehicles, at 322 North Delaware street, Indianapolis, Ind., the Merchants' Auto Co. will operate another garage and salesroom devoted to the sale of Woods electrics and to the storing and handling of both gasoline and electric pleasure cars, at 9 East Pratt street. Simultaneously with this branching out, H. B. Stout, formerly manager, has resigned, and E. Frank Brown has become manager in his place.

Recent Losses by Fire.

Philadelphia, Pa.—Joseph L. Crawford's garage and two cars destroyed. Loss, \$6,500.



PENNSYLVANIA

"Guaranteed"

INNER TUBES

"No. 503"

A high grade tube sell-
ing at a moderate price

For months the Pennsylvania Rubber Company has been experimenting with the development of a genuinely serviceable automobile tube which could be sold at a reasonable price. The Pennsylvania "No. 503" is the result.

Each Tube is Guaranteed

This tube has been so thoroughly tested, is so well made and of such high quality material that it carries an unqualified season's guarantee.

Pennsylvania "No. 503" Tubes are made in the most popular selling sizes.

Persuant to the policy adopted by the Pennsylvania Rubber Company at the time of its re-organization, February 1st, 1910, we have contemplated an attractive margin of profit for the trade, in placing this tube on the market.

*Jobbers and Dealers Desiring to Sell Automobile
Inner Tubes for Profit Should Write Us.*

PENNSYLVANIA RUBBER CO., Jeannette, Pa.

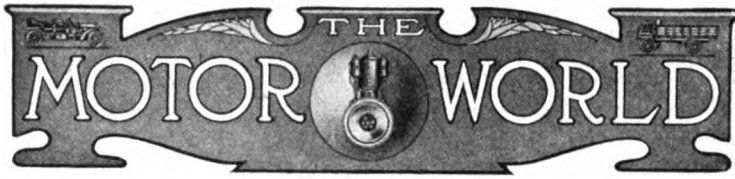
(Re-organized February 1st, 1910)

BRANCHES :

Pittsburgh, 505 Liberty Avenue	Detroit, 247 Jefferson Avenue
Chicago, 1004 Michigan Avenue	Minneapolis, 917 First Avenue S.
Kansas City, Mo., 514 East 15th Street	

PENNSYLVANIA RUBBER CO. OF NEW YORK
New York City, 1700 Broadway

PENNSYLVANIA RUBBER CO. OF CALIFORNIA	
San Francisco, 512-14 Mission Street	Los Angeles 930 So. Main Street



PUBLISHED EVERY THURSDAY BY

The Motor World Publishing Company
154 NASSAU STREET, NEW YORK, N. Y.

A. B. SWETLAND, President and General Manager
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Subscription, Per Annum (Postage Paid) \$2.00
Single Copies (Postage Paid) 10 Cents
Foreign and Canadian Subscriptions \$3.00
Invariably in Advance.

Postage Stamps will be accepted in payment for subscriptions. Checks, Drafts and Money Orders should be made payable to The Motor World Publishing Co.

Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

Contributions concerning any subject of automobile interest are invited and, if acceptable, will be paid for; or, if unavailable, will be returned provided they are accompanied by return postage.

Cable Address, "MOTORWORLD," NEW YORK.

Entered as second-class matter at the New York Post Office, November, 1900.

NEW YORK, DECEMBER 21, 1911.

WOMAN'S INFLUENCE ON AUTOMOBILE SALES.

While the influence of womankind on the sale of automobiles has been a subject for occasional remark, that it is more far-reaching and substantial than generally is supposed to be the case easily is demonstrated.

Whenever there are gathered men possessed of motor cars it requires no very searching inquiry to discover that were it not for the women members of the households represented, the number of cars owned by the men comprising such groups would be considerably reduced or that the cars would be put to much less use; and this is true of many households in which ownership of an automobile is not born of social aspirations or pretentiousness, and on which the purchase and maintenance of a car imposes no sacrifice or burden.

While it may be true that few women are concerned with the mechanism of a car or with mechanical contrivances of any sort, and that they are more impressed by appearance or price than by anything else, that very circumstance contains and conveys significance, and he is a wise manufacturer or dealer or advertising manager who knows how to make the most of it.

Women long have been reckoned the real spenders, that is, the real buyers of the world, but generally they are considered small purchasers—chiefly purchasers of what are denominated bargains. But that they know how and on occasion do not hesitate to "buy big" there is no lack of evidence. The average woman may look longer at a dollar than the average man, but that she is a potent factor in influencing him to let go of it is not to be gainsaid.

So far as motor cars are concerned, she may not actually pay the purchase price of many of them nor actually decide the selection of a particular car, but in tens of thousands of instances each year it is she who inspires or suggests the purchases and who at least casts an impressionable eye over them before a choice is made. In other words, hers is an influence that promotes the sale of cars and it is she who uses them most after the sale is made.

It may be a bold guess, but probably it is conservative, to say that at least one-third of the sales that are made are directly attributable to woman's influence and that but for her the use of cars after they are sold would diminish in even greater proportion, which implies that the sale of tires and oil and gasoline and the other things that keep cars going would shrink correspondingly.

The manufacturer who does take account of the appearances and little "fixings" that impress womankind, the dealer and salesman who fail to display their wares in a manner and amid surroundings that create a favorable impression, and the advertising campaign that does not include an occasional studied appeal to woman—the effectiveness of each falls short of what it might be and permits a real and powerful influence to go to waste.

WHY THE PAUCITY OF HORSE HAULAGE COSTS.

How great is the paucity of figures on the cost of horse transportation is indicated by the statement of an expert whose work has caused him to delve deeply into the subject, that not one per cent. of the thousands who make use of horses for haulage know what the expense really amounts to.

The advent of the practical commercial vehicle chiefly is responsible for the bringing to light of this truly remarkable state of affairs. In seeking information as a basis for comparison between horses and motors, in the endeavor to show the economy of the more modern method, it early was discovered that while there was little difficulty in obtaining statistics covering to the last detail the costs involved in the maintenance of other departments, figures giving the itemized cost of horse haulage were simply unattainable. This situation was found to exist in practically every line of business, excepting only large public or semi-public corporations.

For a long time this lack of information, which was—and still is, for that matter—very general, was ascribed to the unwillingness of firms having in their possession such figures to impart them to others, the usual excuse being that it required years of experience and the expenditure of considerable money to gather the knowledge, and to give it away for the mere asking, and for the possible profit of rivals, would indicate a lack of common sense. This, while not at all satisfactory, sounded quite plausible, and has been the standing excuse for the widespread ignorance which prevails with regard to this vital subject. With unanimity truly surprising, transportation department heads have looked wise and declined to give up their precious data—their cherished secrets.

But as a result of the recognition of the motor truck, it now is quite generally known that in few instances are there serious attempts to keep accurate and complete haulage costs, and that even where such attempts are made rarely are the results either accurate or complete. The "secrets" are no "secrets" whatever. The attitude of the men who harbored them proves to have been the attitude of men who are asked for something they ought to know but do not, and who therefore make a secret of it rather than confess their ignorance of their own business.



Dallas, Texas—Regal Motor Car Co., a Michigan corporation, admitted to do business in the State of Texas. Texas capital, \$1,000,000.

Toledo, Ohio—Toledo Auto Delivery Co., under Ohio laws, with \$10,000 capital. Corporators—Charles K. Friedman, Morris Tobias, Joseph Alexander.

Chicago, Ill.—National Automobile Owners' Alliance, under Illinois laws, with \$50,000 capital. Corporators—W. G. W. Ford, C. E. Becker, S. C. Miller.

Camden, N. J.—Penn Motor Car Co., under New Jersey laws, with \$500,000 capital; to manufacture and deal in automobiles. Corporators—V. A. Murray and others.

Charleston, W. Va.—Callison-Pierson Co., under West Virginia laws, with \$25,000 capital; to deal in automobiles, wagons, etc. Corporators—J. F. Callison, S. R. Pierson and others.

Chicago, Ill.—American Mercantile Supply Co., under Illinois laws, with \$2,500 capital; to deal in automobiles. Corporators—Albert J. Elliott, H. Prather Elliott, John T. Evans.

Milwaukee, Wis.—Wisconsin Auto Sales Co., under Wisconsin laws, with \$20,000 capital; to deal in automobiles. Corporators—George P. Hewitt, Lucy F. Hewitt, R. L. Anderson.

Kansas City, Mo.—E. S. Hutchin Auto Co., of Kansas City, under Missouri laws, with \$10,000 capital; to deal in automobiles. Corporators—E. S. Hutchin, M. G. Hutchin, William Harmon.

Janesville, Wis.—Janesville Motor Co., under Wisconsin laws, with \$20,000 capital; to deal in automobiles and other motor vehicles. Corporators—G. M. Decker, L. J. Doris, A. Schaller.

Chicago, Ill.—Williams' Steel Rim and Tire Co., under Maine laws, with \$1,000,000 capital. Corporators—W. H. Williams, Chicago, Ill.; H. L. Drullard, Verona, N. J.; J. H. Thain, New York City.

Indianapolis, Ind.—The Motor Shop, under Indiana laws, with \$15,000 capital; to deal in automobiles and other motor vehicles. Corporators—Hoover Holton, Lottie E. W. Holton, C. B. Marshall.

Chicago, Ill.—F. A. L. Auto Co., under Illinois laws, with \$2,500 capital; to deal in motor vehicles and maintain a garage. Corporators—Frederick C. Harbour, Clinton S. Lamb, E. M. Lundberg.

Pittsfield, Mass.—Pittsfield Auto Garage Co., under Massachusetts laws, with \$3,000 capital; to deal in automobiles and maintain a garage. Corporators—Mary I. Mills, Arthur A. Mills, Arthur J. Mills.

Chicago, Ill.—Simkin Manufacturing Co., under Illinois laws, with \$25,000 capital; to manufacture and deal in automobile accessories. Corporators—Walter R. Simkin, George F. Friez, Frank Greenberg.

Steamboat Springs, Colo.—Mackey Automobile Wrench Co., under Colorado laws, with \$24,000 capital; to manufacture automobile wrenches. Corporators—William W. Green, H. C. Dodge, Albert Towers.

Salt Lake City, Utah—Anderson-Rippe Co., of Sale Lake, under Utah laws, with \$5,000 capital; to conduct a general automobile repair business. Corporators—B. M. Anderson, Della F. Bowden, Henry Rippe.

Buffalo, N. Y.—Carroll Tire Co., under New York laws, with \$20,000 capital; to manufacture rubber tires. Corporators—John Gregson, George Cunliffe, J. Edward Gregson, Alfred F. Dutch, R. H. MacGregor.

Binghamton, N. Y.—York Gasolene Engine Co., under New York laws, with \$5,000 capital; to deal in gasolene engines and automobile supplies. Corporators—Harry R. Bauer, Theodore W. Oliver, Herbert L. Jennings.

Chicago, Ill.—Commercial Car Sales and Service Co., under Illinois laws, with \$10,000 capital; to deal in automobiles and maintain a garage. Corporators—George H. Taylor, Benjamin McWilliams, Frank A. Rinehart.

New York City, N. Y.—Compound Cycle Engine Co., under New York laws, with \$30,000 capital; to manufacture engines and machinery. Corporators—R. W. France, Brooklyn, N. Y.; C. J. Kulberg, J. P. Thorn, both of New York City.

Windsor, Vt.—Windsor Automobile Co., under Vermont laws, with \$2,000 capital; to deal in and repair automobiles and other motor vehicles. Corporators—F. L. Cabot, Willard D. Cabot, Jessica White Cabot, Frank D. Tracy, J. H. Kinney.

Los Angeles, Cal.—White Garage Corporation, under California laws, with \$100,000 capital; to deal in automobiles, other motor vehicles, and maintain a garage. Corporators—F. Fay Sibley, Martin E. Tew, R. Roy Sibley, C. M. McCully, E. L. Sibley.

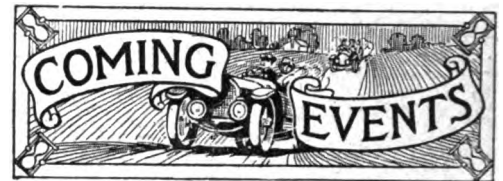
Indianapolis, Ind.—The Bright Carburetor Co., under Indiana laws, with \$200,000 capital; to manufacture and deal in carburetors. Corporators—Samuel M. Bundage, Dr. Clark E. Day, Ulric Z. Wiley, Henry S. Rominger, William P. Coswell, Clifford Arrick.

Increases of Capital.

Detroit, Mich.—Chevrolet Motor Car Co., from \$100,000 to \$2,500,000.

Hartford, Wis.—Kissel Motor Car Co., from \$400,000 to \$1,000,000.

Springfield, Ohio—Springfield Tire & Rubber Co., from \$50,000 to \$150,000.



December 25-26, Los Angeles, Cal.—Racemeet at Los Angeles Motordrome.

December 30-January 6, Buffalo, N. Y.—Buffalo Automobile Trade Association's annual show in 74th Regiment Armory.

January 2-10, New York City, N. Y.—Importers' salon at Hotel Astor.

January 6-13, New York City—Automobile Board of Trade's 12th annual show in Madison Square Garden. Pleasure vehicles only.

January 10-13, Peoria, Ill.—Peoria Automobile Club's show in the Coliseum.

January 10-17, New York City—National Association of Automobile Manufacturers' 12th annual national show in New Grand Central palace. Pleasure and commercial vehicles.

January 13-19, Milwaukee, Wis.—Milwaukee Automobile Dealers' Association's annual show in Auditorium.

January 13-27, Philadelphia, Pa.—Philadelphia Automobile Trade Association's annual show in First and Third Regiment Armories.

January 15-20, Toledo, Ohio—Toledo Automobile Dealers' Association's annual show in Terminal Railway Building.

January 15-20, New York City—Automobile Board of Trade's 12th annual national show in Madison Square Garden. Commercial vehicles only.

January 18-20, New York City—Annual meeting of the Society of Automobile Engineers.

January 22-27, Providence, R. I.—Rhode Island Licensed Automobile Dealers' Association's show in the State Armory.

January 22-29, Detroit, Mich.—Detroit Automobile Dealers' Association's annual show at Wayne Garden.

January 27-February 3, Pittsburgh, Pa.—Automobile Dealers' Association of Pittsburgh, Inc., sixth annual show of pleasure cars.

February 3-10, Montreal, Can.—Automobile Club of Canada's annual show at Drill Hall.

February 5-10, Pittsburgh, Pa.—Automobile Dealers' Association of Pittsburgh, Inc., sixth annual show of commercial vehicles.

February 5-17, St. Louis, Mo.—Annual show in the Coliseum.

February 12-17, Ottawa, Can.—Ottawa Valley Motor Car Association's first annual show.

February 12-17, Kansas City, Mo.—Motor Car Trades' Association's show in Convention Hall.

TAFT SPEAKS AT A. C. A. BANQUET

Declares Himself Opposed to Federal Road Building—Foreign Diplomats and Other Celebrities Who Heard Him.

On Wednesday, 20th inst., for the first time, the chief executive of the United States addressed the members of an automobile organization, the occasion being the twelfth annual dinner of the Automobile Club of America, which was held in the Waldorf-Astoria Hotel, New York. Not all of the thousand-odd men present, however, are members of the club. Most of them are persons of no little distinction in affairs national, civic and commercial, and their presence made the function the most notable of a succession of similar functions, which serve annually to demonstrate that the club really is more than a great big owners' garage association. Those seated at the guests' table were:

The toastmaster, who is the president of the club, Henry Sanderson; on his right was the President of the United States; on his left Gen. Horace Porter. The other guests of honor in the chairs were Count J. H. von Bernstorff, the German Ambassador; Gov. John A. Dix, Senor Don Juan Riano y Gayangos, the Spanish Minister; Lieut.-Gen. Nelson A. Miles, E. H. Gary, Col. John Jacob Astor, M. du Pulligny, representing the Automobile Club of France; Franklin Murphy, ex-Governor of New Jersey; Walter H. Page, Frank A. Vanderlip, president of the National City Bank; Chauncey M. Depew, Supreme Court Justice Victor J. Dowling, William Barnes, Jr., Henry W. Taft, the Duke of Newcastle, President John H. Finley of the City College, Patrick Francis Murphy, manufacturer of leather and epigrams; F. M. Schmolck, representing the Nederlandsche Automobil-club; Rear Admiral E. H. C. Leutze, Jacob H. Schiff, E. S. Martin, Henri Martin, representing the Automobile Club de Suisse; Morgan J. O'Brien, Major Thomas L. Rhoads, President Taft's physician; M. Clarholm, representing the Kungi-Automobil-Klubben; Major Archibald W. Butt and Dave H. Morris.

President Taft, of course, was the principal speaker, and of the others who enlivened the dinner the more important were the German Ambassador, President Finley of the City College of New York, and Patrick Francis Murphy, a wit.

The President's speech was liberally interspersed with humorous remarks and therefore frequently was interrupted by applause, but eventually he got down to serious things, though even the subjects were handled gently and in non-committal fashion. His most committal remarks disclosed that he is opposed to the movement in favor of Federal aid in building and maintenance of roads; he intimated that it

was "unstatesmanlike" and told his hearers that they should not ask the government to stand the expense because no one could tell what the ultimate expense might be. Though it was hoped he would say something about Federal registration he adroitly dodged the question and left his audience little the wiser. He said in part:

"Seriously speaking, my friends, the working out of the automobile is a wonderful development. As you look back as far as I can look back at least with any sense of economic changes, to 1876, and to what has happened in that period in the production of the comfort of the human race, the changes are marvelous. The telephone, the electric railway, all the electrical devices for the reproduction of the human voice, and the automobile. What could we do without them now? How rapidly we adapt ourselves to the absolute necessity of these improvements of which we knew and imagined nothing fifty years ago!

"Many serious problems are going to be presented, and you are having them now, with these State lines and these authorities, of whom you can have three in a very short automobile ride, just in this neighborhood. I don't know how you are going to get rid of them. You might set up some theory of yourself being an unopened and complete package, sent from Connecticut into New Jersey through New York, that cannot be opened until you reach the point of the designation and in some way or other call upon the Federal Court to protect you in that transportation.

"The question of good roads is a difficult one, not only because of the perfection of a road for the purpose of resisting this much heavier travel but it is also difficult because of a question who is to pay for the roads? Are they to be built by the State? Are they to be built by the county, and who is to take care of them? which is a much more important question, but I hear the earnest patriot—and it does not make any difference how he construes the Constitution if there is any plan of running a national road near his farm—I hear the earnest patriot say, 'It is the business of the general Government to build those roads. Let's have a national road running from New York to San Francisco to teach the world what a model road is.' 'But what would it cost?' 'Oh, what difference does it make what it costs? You can strive and hunt ways of saving a hundred million dollars in the matter of employees at Washington, but when it comes to building roads what is a hundred million between friends?' And there is the difficulty, gentlemen.

"I admit that the general Government has the power, for the purpose of promoting interstate commerce, to build national roads. It has done it already, but I venture to question the wisdom of opening that method of spending Federal Government money. I think it is much better to have the neighborhood and the State as a

large unit expend its money in the construction of roads across the State, of aiding the counties to keep the roads in repair, because if you once set out upon a plan of national waterways I do not know how great the expenditure will amount to. If we could confine it to two or three roads I would not object, but we have forty-eight different States, and every State is as anxious to share in the common funds at Washington as every other State. And it is a dangerous experiment that I would suggest great delay and deliberation in before you undertake so great an expenditure, the stopping of which will have no end.

"We have had some experience in that in Washington and we are looking forward now to large expenditure and if we are going to add roads and if you are going to run automobiles through them and over them and into them and going to promote the cost of them, as you will, increasing, of course, the intercourse between all the people, creating a benefit which I do not minimize, nevertheless I say to you that if you can reach that benefit without opening the national Treasury I think it will be the wiser and more statesmanlike course."

Scarritt Joins the Silent Majority.

One familiar face and figure was missing from the Automobile Club's twelfth annual banquet—that of Winthrop E. Scarritt, who died at his home in East Orange, N. J., on Thursday list, 7th inst., after an illness of scarcely four days. Pneumonia was the cause of his death.

It is probable that there are few men who were better known to those intimately connected with the automobile interests than was Winthrop E. Scarritt. He was a successful broker, and though he never actually became connected with the automobile trade, other than that he held shares of stock in several companies, he was one of the men who always was prominent. He was one of the earliest and hardest workers in the vineyard. He was one of the founders and the first president of the American Automobile Association, his term of office beginning in 1902; later, in 1904, he became president of the Automobile Club of America. He was a fluent and frequent speaker and the unremitting champion of good legislation. He always was ready and willing to go where self-imposed duty called, and it called often and earnestly.

Winthrop E. Scarritt was born in Alton, Ill., on June 17th, 1857, and educated at De Pauw University in Indiana. Subsequently he engaged in the banking business both in South Dakota and in Kentucky, and later moved to New York, where he entered the brokerage business and amassed a considerable fortune. Mr. Scarritt was an energetic Mason, being a 32d degree member of the Scottish Rite. He was also in the Hope Lodge of East Orange and the Jersey Commandery of New York City. He is survived by a wife and three sons.

ECONOMICAL DRIVING EARNS AWARD

Cincinnati Chauffeur Wins Winton's \$1,000 in Annual "Upkeep Contest"—Nineteen Others Who Kept Down Upkeep.

Sixty-four drivers of Winton cars again proved that when chauffeurs are on their mettle, so to speak, the cost for repairs and replacements on big cars can be made uncommonly small. In the case of the 64, the cost of upkeep between April 1 and November 30 of this year was so small that it earned them handsome bonuses. The skilful 20 drove their employers' cars over 394,333.9 miles, at a total repair cost of only \$20.88, averaging but \$1.04 per car, and thereby shared the \$3,500 which the Winton Motor Carriage Co. awarded this

Sixteen awards of \$100 each were made to the following winners:

William Tesnow, chauffeur for J. W. Strackbein, Chicago, Ill., 23,970 miles. No expense.

John L. Dondero, chauffeur for F. M. Hawthaway, Boston, Mass., 22,932 miles. No expense.

W. Bach, chauffeur for Mrs. Anna M. Hermes, Pittsburgh, Pa., 21,258 miles. No expense.

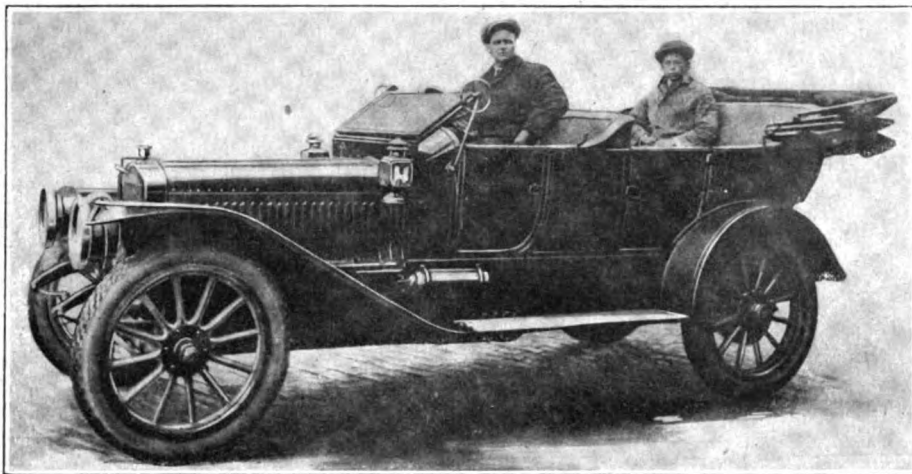
G. W. Butler, chauffeur for J. E. Clenny, Chicago, Ill., 21,133 miles. No expense.

P. O. Hawkins, chauffeur for W. B. Simpson, Chicago, Ill., 20,551 miles. No expense.

Lloyd Hoge, chauffeur for F. H. Greene, New York City, 19,096 miles. No expense.

M. T. Jones, chauffeur for Dr. A. H. Hilsman, Albany, Ga., 21,505 miles. Repair expense, \$1.25.

B. A. Trimpe, chauffeur for E. W. Ed-



P. W. MULFORD, WINNER OF WINTON "UPKEEP CONTEST"

year to the 20 best records made during that time. It was the fourth annual "upkeep contest" of the kind, those of former years having been limited to the best ten drivers.

P. W. Mulford, driver for R. R. Reilly, of Cincinnati, Ohio, was the most successful of the 20 in keeping down the upkeep expense; he drove 27,325 miles during that period at a total repair cost of \$1.20, and received first prize—\$1,000. In last year's contest Mulford, who then drove for W. J. Friedlander, of Cincinnati, won third prize with an expense of 30 cents for 18,809 miles. Equally notable is the record of William E. Ochsie, driver for Martin Daab, Hoboken, N. J., who received the third prize, \$250, for having caused his employer an expense of but ten cents for 24,221.4 miles. Ochsie won fourth prize last year with an unblemished account for 17,130 miles. The second prize, \$500, went to R. W. Lee, Millville, N. J., who drove S. J. Franklin's car over 25,290 miles at no expense. Fourth prize, \$150, went to John Dugan, driver for Mrs. William E. Fox, of New York City, who covered 24,082.6 miles at no expense for repairs.

wards, Cincinnati, O., 19,960 miles. No expense.

E. P. Brubaker, chauffeur for James W. Stevens, Chicago, Ill., 18,960 miles. No expense.

Samuel Emerson, chauffeur for A. S. Gilman, Cleveland, O., 15,017 miles. Repair expense, 25 cents.

W. R. Saxton, chauffeur for E. M. Patter, New York City, 14,259 miles. No expense.

L. V. Wright, chauffeur for Charles F. Lembke, New York City, 14,235 miles. No expense.

S. E. Johnson, chauffeur for E. B. Putnam, Philadelphia, Pa., 17,396 miles. Repair expense \$7.32.

William J. Green, chauffeur for Dr. E. L. Smith, Chicago, Ill., 16,531.7 miles. Repair expense, \$10.76.

Everett E. Stokes, chauffeur for Henry Hall, Philadelphia, Pa., 13,853 miles. No expense.

Alfred Colscen, chauffeur for W. R. Noone & Co., Boston, Mass., 13,634.1 miles. No expense.

The contest is open to all employed drivers of Winton Six cars.

EMPLOYER LIABLE FOR JOY-RIDER

Detroit Manufacturer Mulcted by a Jury for Tester's Offense—Law's Constitutionality to be Attacked.

According to the law of Michigan the owner of an automobile is responsible for all damage done or injuries inflicted as a result of accidents by his car, no matter who is in charge of the machine at the time, and even though the owner may not even know the car is out of the garage. The only way he can escape responsibility is by proving that the machine was stolen. Under this law John W. Parrott, of Mt. Clemens, Mich., won a suit against the Metzger Motor Car Co., of Detroit, for injuries sustained when an automobile belonging to the Metzger company ran into his milk wagon, overturning it and injuring Parrott. The contention of the Metzger company, which acknowledged the ownership of the machine, admitted the accident and agreed that there had been no negligence on the part of Parrott, was that the law conflicts with the fourteenth amendment to the Constitution of the United States, which provides that a person shall not be deprived of property without due process of law. The law was characterized as class legislation.

The plaintiff contended that the State Legislature had a right to make police regulations to protect the public from reckless chauffeurs, and that if owners could not be held responsible there would be no way for injured persons to recover damages in cases of accident. This is the first time the constitutionality of the act making owners responsible for the results of accidents caused by their cars when out of their control has been questioned, and neither side could find a decision that threw light on the point. When the case went to the jury, therefore, all it could do was to determine the amount of the award to the plaintiff, and this was fixed at \$1,843.

Judge Angell, before whom the case was tried in the United States District Court, expressed doubt as to the constitutionality of the act. "The same degree of responsibility does not attach to the owner of a horse and wagon," he said, "and it seems unfair to place the owner of an automobile in a special class." The case will be appealed and the constitutionality of the law thoroughly tested.

A. A. A. Lifts Ban from Offending Trio.

J. P. Ogden, J. W. Richly and Charles Lambright have been reinstated by the A. A. A. Contest Board. They were suspended on July 18th last for participating in an unsanctioned race meet at York, Pa., on the "glorious Fourth." Their sentence of "six months" was due to expire on January 1st next.

WILL BE AN "ORIENTAL GARDEN"

Such Will Be the Decorative Scheme of New York Show—How the Idea Will Be Carried Out.

It will be an "Oriental garden" in which the Automobile Board of Trade's next and last show in Madison Square Garden will be staged. Several pictured suggestions of the decorative scheme have been issued from time to time, and last week the Motor World illustrated the entire interior as it will appear when the show is opened on January 6th, but the official definition of the decorative theme just has been supplied: it will be representative of an "Oriental garden."

Entering the foyer from the Madison avenue entrance, the visitor will find himself in this oriental garden, dotted with recessed plaster figures and surrounded with hedges. After having feasted his eyes on the statues and near-statues in the foyer the visitor will pass into the main hall, where the ceiling will be found to resemble what is described as an "inverted oriental carpet" of red and gold. The painting which will accomplish this resemblance is said to weigh more than three tons; it will cover the entire ceiling and hang down over the sides of the top gallery.

The exhibition spaces on the main floor, elevated platform and balcony will be carpeted with a specially woven fabric of green, resembling a huge fountain backed by a statue representing the "motor era," while about the fountain are eight allegorical figures ten feet high arched by garlands of natural flowers. Six bay trees are recessed in the front of the fountain. Beyond this fountain will extend the main display space.

The plan of having the elevated platform and balcony above the arena boxes project over the main floor and of covering the high rear seats so as to make a sort of mezzanine floor again will be repeated. For the edges of the elevated platform and balcony special railings have been designed, which, like the stairways, standards and decorative borders, will be finished in gold. In the general view these railings of the platform will rise in three rows in front and rear and two rows on each side of the interior.

Along both sides of the arena will be boxes similar to those of the horse show, which will seat 1,200 people. Extending about the arena, towering to the dome, will be a number of ornate steel columns, which are expected to lend much to the stateliness of the whole effect. These columns support the balconies. More than 200 tons of steel and 1,000,000 feet of lumber are to be used in reconstructing the building. The two monster elevators which were successfully used at the last show will again be put

into service to hoist the exhibits to the balconies.

The "exhibition hall" will be transformed into a patio. Here the exhibits will appear in a "Lower California" setting. A big pergola will extend about the room. This pergola is supported by Doric stucco columns and is topped on one side with a tile roof. The center of the room is open except for a miniature pergola which is topped with cross beams entwined with foliage. A blue sky effect is afforded by peering upwards through the beams. A mammoth painting, by "Pal," depicting California scenery, will extend about the four walls of this room.

The "concert hall" will be transformed into a veritable cherry garden. The visitor will be under a canopy of cherry blossoms, in full bloom, so dense that nothing can be seen beyond the branches of the trees. Incidentally, the branches will be real. Along the walls of the room will be a Japanese panorama with Fujiyama, the sacred mountain of Japan, a feature of the scene. In the basement will be found a Bodega. A big mirror will add width to this room and Spanish scenes can be viewed by the visitor through big arches.

5,124 Commercial Vehicles in New York.

Although Secretary of State Lazansky declared in a recent public address that there were "about" 8,000 commercial vehicles in use in New York State, it appears that those figures were general and included the estimated number of motor vehicles owned and operated by dealers under their manufacturers' licenses. According to the official records of the State Department there were registered, up to November 28, 1911, 5,124 cars as commercial vehicles, out of a total registration of 82,943.

Defining the term "commercial vehicle," the Secretary of State declares that as far as registration in New York State is concerned, it applies exclusively to trucks, delivery wagons and omnibuses operated over a defined route under schedule time and at uniform rates of fare, and that all other motor vehicles which are operated or may be operated for profit under some circumstances are, nevertheless, classed as pleasure vehicles. This decision appears to lay at rest the rumor that taxicabs were to be classed and taxed as commercial vehicles; a rumor which arose after the test case brought by the New York Transportation Co. against the Secretary of State, in connection with the motorbuses on Fifth avenue, had resulted in their being declared "commercial vehicles."

San Francisco Building for Goodyear.

The Goodyear Tire and Rubber Co. has executed a lease for a two-story, reinforced concrete building which will be erected on West Van Ness avenue and Sutter street in San Francisco. It will be designed specially for the Goodyear use and will, of course, house its San Francisco branch.

STUDIED TRUCKS WHILE IN EUROPE

S. A. E. Members Who Found Such Study of Special Interest and Their Opinions —Steam Lorries Numerous.

Though little or nothing has been said regarding the status of the motor truck industry in England and Continental Europe, not all of the members of the Society of Automobile Engineers who crossed the Atlantic to study foreign practice confined their investigations to pleasure car factories. Several of them made the trip for the express purpose of delving considerably below the surface in that particular field and some of the conclusions they reached and some of the things they saw are interesting, to say the least.

For instance, they saw immense steam tractors lumbering and smoking through the streets and dragging after them three and in some cases four big trailers all loaded high with merchandise. In fact, these steam trains really constituted one of the impressive features of the visit to London. During the day not many of them were seen. It was after nightfall that they commenced to be plentiful, and in recounting some of his experiences Arthur J. Slade, who is one of the engineers who made the trip with a view to investigating commercial vehicles in particular, stated that the din they created was unmistakable.

"This is rather curious, too, when you stop to think about it," he said to the Motor World man. "As you doubtless are aware, the London police regulations governing the use of motor vehicles are rather strict, particularly as regards noise. Silence is insisted on as one of the conditions under which licenses are issued for taxicabs and buses, and yet these great steam lorries clatter around the streets and the police never seem to take the slightest notice of them. And it is not as if they were few and far between for they are fairly numerous and the average Briton scarcely turns his head to watch one pass.

"They are not used in the city proper to any great extent. They are employed principally between small outlying towns where the haul is comparatively short—50 to 100 miles—the transportation of goods in this way having been found to be cheaper than railroad transportation. They are used, too, to a great extent between factories and not far distant distributing points, which accounts in a measure for their appearance in the larger cities after dark. They are necessarily slow, and leaving suburban towns early in the morning, they reach the big trade centers late at night when traffic is not so congested and the long trains of trailers can be handled more easily.

"Transportation by this means is considerably cheaper than it can be when gasoline trucks are used, but of course speed is

not a consideration. But slow speed has an undoubted advantage in that depreciation costs are materially lessened. The average speed of these steam lorries with their string of trailers varies from three to eight miles an hour, according to the length of the haul and the character of the roads.

"One of the surprising features of the whole scheme is that the men who are employed to drive the steam trains really are an intelligent set. Even if they are not required to pass an examination and obtain a license to operate their road locomotives, at least they must know as much as the average locomotive engineer, and this necessitates a certain amount of schooling that is not necessary for the operation of gasoline trucks. Despite this, however, the wages they receive are comparatively low, quite a bit lower, in fact, than are received by the average motor truck driver in this country.

"Is there anything about it—is there even a ghost of a chance that the steam lorry will become popular in New York? Well, I hardly think so. Just imagine a big steam tractor puffing up Fifth avenue with four or five trailers in tow and you very nearly have the answer right there. In the first place, they are destructive to pavements, which in itself is a serious drawback, and in the second place it is extremely doubtful if the American manufacturer ever would be satisfied with their slow speed, notwithstanding their economy of operation. If they are arranged to run faster, which can be done in some cases, then there arises the objection of vibration, for steel tires are used exclusively and unless the roads are exceptionally fine it is difficult to keep joints steam-tight. No, I don't think they ever will be used here to anything like the extent they are abroad—if at all.

"There is another feature which helps to make them popular abroad and this is that some governments subsidize them. Also, municipal governments have given considerable encouragement to the industry by using steam lorries for the removal of refuse such as ashes and garbage, and for street sweeping and sprinkling."

"Regarding gasoline trucks," he continued, in answer to a suggestion, "it is my opinion that despite the fact that foreign manufacturers turned to the production of trucks before we did, and therefore can boast of longer experience, this branch of the industry is not as well developed abroad as it is in America. It is quite true that a great number of trucks are used in England and France, but their number is not as great as it is here. Neither do the really large manufacturers of pleasure cars seem to be giving trucks the attention that is given them here. Over there one finds a great number of light trucks that once were pleasure cars. Also there is a great number of light three-wheel delivery cars that are used about the cities. There are few really big firms, however, that

specialize in the production of the heavy class of trucks."

"In the shops where trucks are manufactured," he continued, "we saw a great deal of hand work though there is no ground for the expressed sentiment of some of the British trade papers to the effect that we thought that their cars were built by hand and with the help of antediluvian machinery. It is true that in many of the shops the amount of hand work is double or triple the amount done in the average American factory, but in other shops it is a question whether American methods are even a little bit ahead of those that are used abroad.

"For instance, in France we visited the Delage factory, which is a comparatively small one, and yet we found some of the most up-to-date machinery and methods. Crankcases and gear boxes are die cast in the most approved fashion and afterward are placed in jigs and without marking or centering are drilled and removed ready for assembling. And the accuracy of the parts which are turned out on the automatic machinery in this plant was particularly noteworthy. We were handed pistons out of one stock bin and connecting rods out of another and wrist pins out of another, just as these parts had come from the machines and yet they fitted together with a beautiful sucking fit and without the slightest rattling or binding.

"It is difficult to try to compare production costs for there are so many factors which must be considered. Labor is cheaper, of course, but this is largely offset by the smaller quantity of trucks which is produced, and in the end it seems to me that the actual cost must be very nearly the same there as it is here."

A. B. Cumner, who is maintenance engineer for the Autocar Co., is another of the party who made the trip for the express purpose of studying the commercial vehicle industry, and that which impressed him most was, to use his own words, "the apparent lack of standard models."

"Almost every purchaser," he says, "designs his own cars to a certain extent, using as much of the manufacturer's design as meets his approval and changing those parts which do not. This forces on the manufacturer special work for almost every order, delays delivery and particularly delays the obtaining of replacement parts. It also forces on the owner a much larger and better maintenance equipment than were the cars of standard manufacture, and as a result, cars are better taken care of by their owners than in this country.

"The British driver, as a rule, is one who obeys orders, particularly with reference to overloading and overspeeding. The owners accord to the drivers sufficient time to keep their cars in good road condition and insist upon their legitimate use, even to the possible detriment of delivery of good efficiency, as they find that policy far cheaper in the end. Overspeeding is less prevalent than it is in this country, as the police are

very strict and the record of each offense is endorsed on the driver's license. The third offense results in revocation of the license for various periods, but generally for one year.

"The large number of quantity owners was particularly noticeable, and it appears that when a concern starts to use commercial motors the increase in its equipment is rapid. Cars generally are equipped with bodies built for a certain class of haulage and are used only for that particular work, with the consequent result that they seldom are overloaded.

"For cars of less than two tons capacity, the general practice of using two-cylinder motors was most pronounced, the large majority of them being so equipped. The operating cost per mile, when due allowance is made for difference in wages, seems to be about the same as the cost in this country."

The extensive use of steam vehicles for the transportation of larger load units also was remarked by Cumner.

"It seems that the cost of operating steam lorries per ton mile in load units of five tons and above is considerably lower than when the same size units are transported using internal combustion motors for power," he says. "The government has repealed the old laws prohibiting the use of steam vehicles in the streets but I doubt if American officials ever will permit their unhampered use. These steam tractors, often hauling trains of four or five trailers, are a common sight."

To factory and production methods, Cumner paid little attention, this part of the investigation for the Autocar company being carried on by B. B. Bachman, who is the company's assistant engineer. That which impressed him most, he says, was the small number of jigs and special tools which are used. That this probably is due to the cheap labor and the comparatively small production of similar models is his opinion.

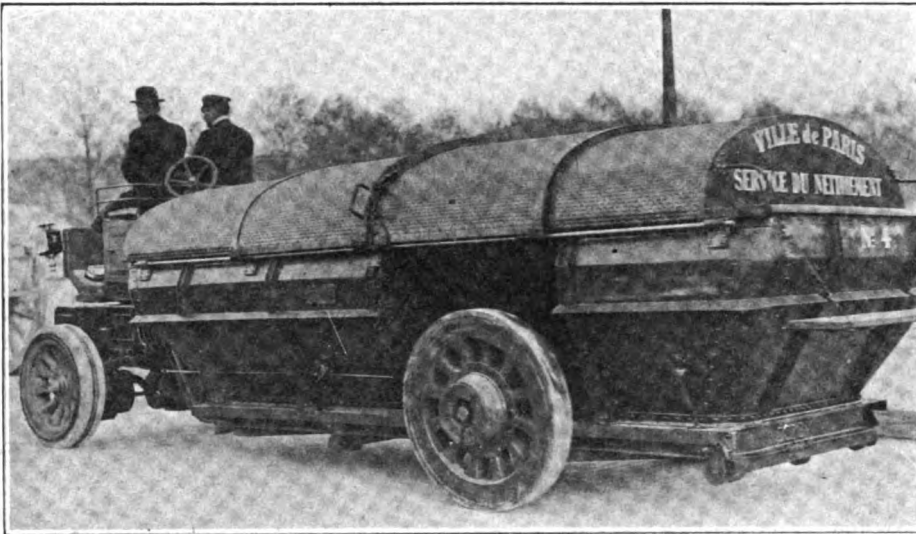
While not applying particularly to the commercial vehicle side of the industry, the inaccessibility of most of the parts on foreign cars which was remarked by W. G. Wall, of the National Motor Vehicle Co., is interesting inasmuch as it indicates that in this respect, at least, American manufacturers are ahead of their foreign cousins. He, also, was impressed with the frequent evidences of the efforts of manufacturers to reduce motor and transmission noises, and particularly with the tendency to eliminate torsion and radius members by arranging for the springs to perform the functions of these parts.

John G. Wood, who is general manager of the Empire Motor Car Co., was most impressed, he says, by the high finish which is given the ordinary mechanical parts and also by the unusual lack of parts makers or specialists. Also, he noted that apparently the total output as compared to the investment involved is small.

GIANT MOTOR TO GATHER REFUSE

Paris Instals Remarkable Vehicle to Assist Motor Sweepers in Cleaning the Streets—Its Capacity for Work.

While the United States in many respects is in the vanguard of the nations as far as mechanical efficiency is concerned, it is far behind in everything pertaining to street cleaning methods and the gathering of



MOST MODERN GARBAGE CART—IN USE IN PARIS

refuse. Compared with the stone-age system of dumping ashes and garbage into open carts, from which a large percentage of the contents is carried away by the wind, which system is in vogue in New York and most other large American cities, the methods adopted in Paris, Berlin, Vienna and other continental European cities might be styled ideal.

In Vienna, for instance, suction sweepers are in operation, which work on the principle of the vacuum cleaner. In Berlin, the exchange system of garbage collection is in vogue, under which full boxes are taken away by means of motor trucks, while empty receptacles are left in the court yards of the houses; the sweeping is accomplished by motor sweepers preceded by flushing wagons, and followed by a company of "white wings," who put the final touch to the "manicuring" of the streets.

In Paris there has been added to the street cleaning outfit a vehicle of extraordinary dimensions, which is shown in accompany illustration. It is designed to cart away sweepings and garbage, keeping the latter protected from disturbing breezes and the pedestrians' lungs from inhaling the dust. The sweeping itself is accomplished by a whole fleet of motor-driven, high-wheeled vehicles, shown in the second photograph. These vehicles are operated in companies of three, capable of cleaning one side of the street in a single trip. A number of "white wings" follow the motor-driven sweepers, gathering the refuse into

heaps at intervals of a block. Later on the huge covered vehicle travels over the same route collecting the refuse. The cart is capable of hauling the ordinary sweepings of one hundred street blocks in a single

Lapse of a Year Means New Registration.

In answer to an inquiry from the Secretary of State as to the requirements for new registration of an owner who, although legally registered in 1910, fails to register of one hundred blocks in a single trip.

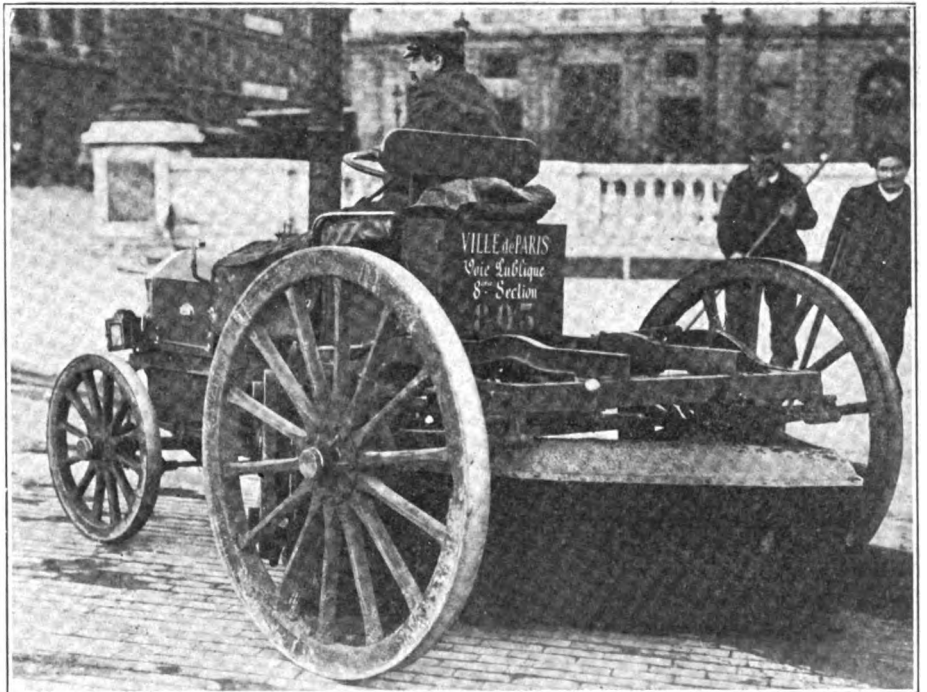
IN FAVOR OF BOOSTING STATIONS

Electric Light Man Suggests Modified Electric Vehicle Campaign—Also Runs Counter to Several Popular Notions.

Though manufacturers of electric vehicles have consistently advocated the maintenance by central stations of charging facilities for the individual user, and in most cases the central stations themselves have supported the proposition, not all of them can agree as to the legitimacy of the plan.

Stephen G. Thompson of the Public Service Electric Co., of Newark, N. J., represents one of them that cannot do so, and in support of his views he stated in a paper read before the last meeting of the Electric Vehicle Association of America, held in New York on Tuesday, 19th inst., that the same contention "might logically apply also to the free installation of motors, fans, irons, house-wiring, and in fact, all electric appliances." "It would appear more rational to assume that the sale of a vehicle should include all accessories required for its proper care and operation," he added.

That the establishment of boosting stations might, however, legitimately come within the scope of central station activity,



FRENCH MOTOR STREET SWEEPER OF UNUSUAL PATTERN

ruled that "the motor vehicle law requires that an application for a renewal of a registration of a motor vehicle must be made within the year following the termination of the last registration, and if such application be not made, the application must be made in the same form as if the motor vehicle had never been registered."

is his opinion. Naturally, they would be cheaper to maintain, for the reason that the equipment required for a full-fledged charging station would not be necessary; there would be no necessity, either for employing an expert to devote his time to the care of batteries. "Such stations," he explains, "would not only relieve the minds of vehicle

operators of the constant anxiety regarding the ability of a machine to meet a desired performance, but in doing so would promote a more extended use of electric machines, and invite manufacturers to engage actively in selling their wares in the territories thus served." "Boosting stations", it may be added, are places where vehicle batteries can be given a short charge at a high rate to permit them to be continued in operation temporarily, after the normal charge has been exhausted.

"If there be any truth in the oft-reiterated statement that the electric vehicle will

that they also may secure their proportionate share of the business. * * *

"The question: Should the central station maintain public garages for electric vehicles? is one which has been solved only in those cities where the number of machines is already sufficient to induce capital to invest in the project. In other localities it is generally difficult to prevail upon garages housing gasoline cars to care for electrics and provide proper charging facilities, because the income to be derived from these machines is not sufficient to induce them to allot the necessary space to

to warrant their operating their own garages. The Union Electric Light & Power Co., of St. Louis, furnishes an excellent example of the results to be expected from the establishment of garages by the central stations. This company first became interested in electrical vehicles in 1907, at which time there were but eleven machines in operation in the city. Subsequently they established two electric vehicle garages, one for pleasure machine with a capacity of 60, and one commercial vehicle garage capable of caring for 75 machines. The number of vehicles now in operation

INNER TUBES FOR TOWING PURPOSES—NOVEL "STUNT" PERFORMED IN FLORIDA

To the wonderful records which have been made by tires, there has been added one which if unsubstantiated by photographic proof might well be open to suspicion. The tire in question is in reality

capacity than that of a tow line and its elasticity and strength were such that it is said to have come through the ordeal scathless. At any rate, it is on view in the window of a Jacksonville garage that those

with four passengers, the approximate weight of the "tow" being 2,500 pounds. The other end was attached to another car and through the intermediary of the tube the E-M-F and its load were towed not only



only part of one; it is a 32x4-inch Kelly-Springfield inner tube, and though the record was made in a 15-mile run over city and country roads in and about Jacksonville, Fla., it is the manner in which the tube was used which warrants the claim for the record. Briefly, it was used in no other

who so desire may see that it is unharmed. That the test really was a strenuous one may be judged from the accompanying picture. Ostensibly for the purpose of demonstrating the ability of the tube to withstand unusual strains one end of it was attached to the front axle of an E-M-F car loaded

through the city streets but out into the country, over sandy roads and up a hill as well. At the completion of the test it is said the tire was found to be in perfect condition despite the inordinate amount of stretching to which the rubber had been subjected.

represent 65 per cent. of the total number of commercial machines employed," he stated further, "at the end of 1915 instead of 50,000 electrics and 150,000 gasoline machines, based on the present ratio, there should be 130,000 electrics and 70,000 gasoline; and it is this fact alone that justifies the central stations in actively promoting the introduction of electric vehicles in the same manner in which they have promoted the introduction of other current-consuming devices, that this condition which should exist may exist, and each be assured of a just percentage of increase in this business within his territory. In like manner must the activities of the vehicle manufacturers extend to the territories of the central stations promoting electric machine usage,

the exclusion of the more remunerative gasoline car. This, of course, is particularly true of garages where the number of electric vehicles housed would be so small as to make the employment of a competent battery man unwarranted, and the current rate earned would be insufficient to permit of a reasonable margin of profit.

"Because of this condition, it would seem advisable in those sections where there is an apparent need of electric vehicle garages to promote the more general use of electrics, that the local lighting company should subsidize such garages during the period necessary to put them upon a paying basis, or until such time as the vehicle manufacturers themselves shall have placed enough machines in the territory

is reported to be 450; and whereas at the time they commenced activities it was impossible to induce the local garage men even to recognize the electric machine, since October, 1910, the number of public electric garages has increased 62.5 per cent., and there are over 16 commercial garages."

Regarding the argument that the central stations themselves should operate electric vehicles to demonstrate their faith in the apparatus they are recommending, it is in itself not a legitimate one, he said in substance, if the operation is for the purpose implied alone. "There is no more reason why they should be employed," he said by way of emphasis, "than that the central station man should refuse toast not made on a patent electric toaster."

ALPCO STARTER CLOSELY REGULATED

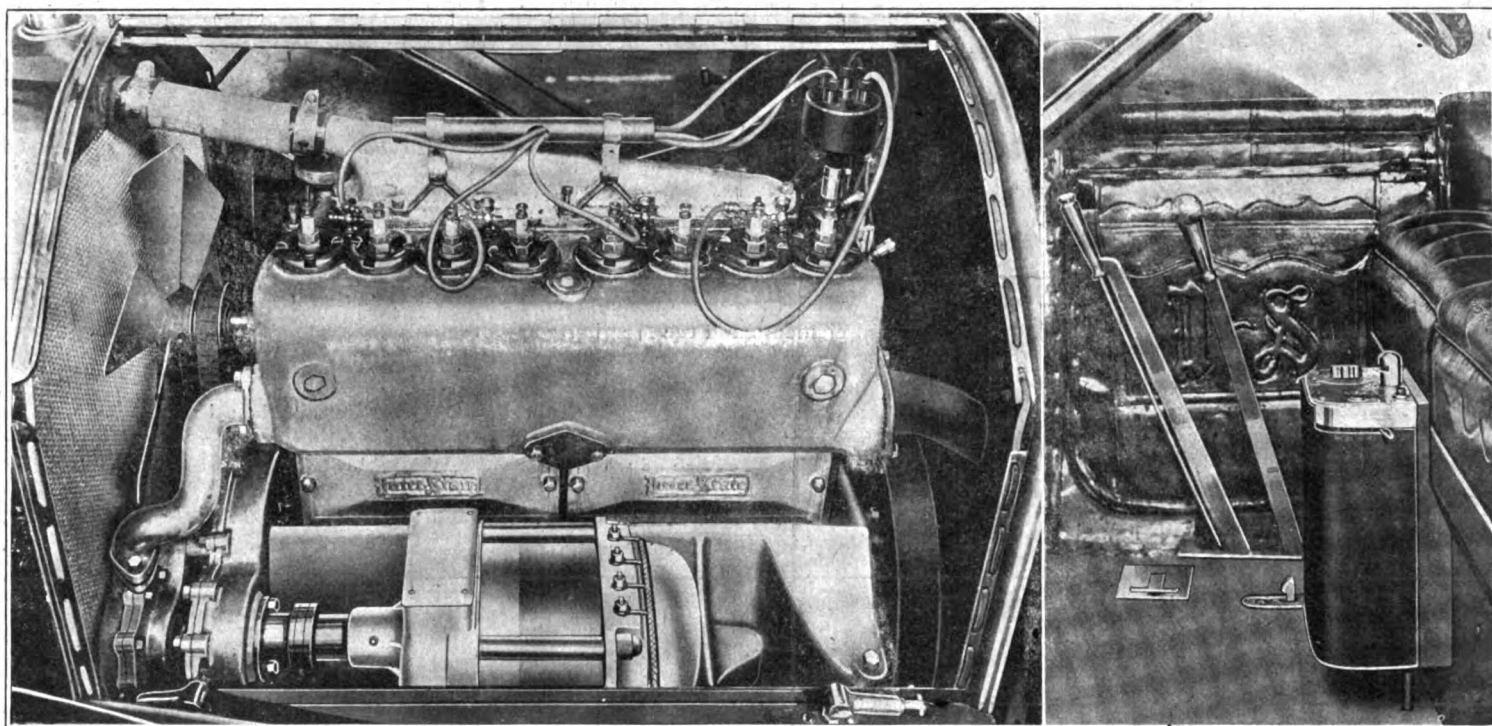
Novel Governor Prevents Overproduction of Current—Entire System is Built Directly Into the Car.

Electric motors and generators have been brought to such a high state of efficiency that their employment, in conjunction with storage batteries, for starting gasoline motors, has offered a tempting field for designers. The problems involved, however, were not easily solved, and for this reason acetylene, compressed air and gasoline starters have predominated numerically. Having carried out the necessary preliminary

work, and may be gear driven in precisely the same manner as a magneto or pump, with the important exception, however, that a friction clutch, automatic in operation, is included in the driving system. When acting as a starting motor, the drive is through a reducing gear which gives the crankshaft a rotative speed of from 40 to 60 r. p. m.; but when the engine picks up and runs under its own power the reducing gear is automatically disengaged and the motor becomes a generator, running at the same speed as the engine and furnishing current. A governor, said by the makers to be of a type entirely different from the standard Apple governor, holds the speed of the generator within such nice limits that it is claimed a two candle-power lamp

be used for the battery. It is claimed that this battery will furnish sufficient current to keep the engine running for 40 minutes.

None of the controlling apparatus is placed on the dash, but is concentrated in a controller box placed on a panel at the front of the driver's seat. This, the heart of the system, includes the starting lever, which turns on the current for starting the motor and at the same time switches on and retards the ignition; the switch for the lights, which permits the use of any desired combination of lights and also provides for the dimming of the headlights; buttons for the lash lamp and electric horn, and a pilot light which burns as long as all the apparatus is working properly. This lamp is covered by a metal hood to pro-



SHOWING THE ALPCO ENGINE STARTING AND LIGHTING DYNAMO IN POSITION AND THE "CONTROLLER BOX"

mary work, the electrical people are now coming to the front, as was indicated by the announcement in last week's Motor World of the "arrival" of three electric starters, all the products of well-known concerns. One of these, brought out by the Apple Electric Co., of Dayton, Ohio, is shown in the accompanying illustrations.

The AlpcO electric self-starter has, as its principal features, a storage battery and a motor-dynamo, the latter being driven by current from the storage battery to start the engine, and being driven by the engine for the purpose of generating current to charge the batteries for electric lights and signals. The feature of the system which is most conspicuous is that it is built into the car and is as much a part of its permanent equipment as the ignition or cooling system.

The motor-dynamo is located alongside the engine with its shaft parallel with the

crankshaft, and may be gear driven in precisely the same manner as a magneto or pump, with the important exception, however, that a friction clutch, automatic in operation, is included in the driving system. When acting as a starting motor, the drive is through a reducing gear which gives the crankshaft a rotative speed of from 40 to 60 r. p. m.; but when the engine picks up and runs under its own power the reducing gear is automatically disengaged and the motor becomes a generator, running at the same speed as the engine and furnishing current. A governor, said by the makers to be of a type entirely different from the standard Apple governor, holds the speed of the generator within such nice limits that it is claimed a two candle-power lamp

can be burned on current supplied direct from the dynamo—which is very close regulation. The governor is so set that when the car is running at a speed of less than ten miles an hour, more or less, according to the type of vehicle, the storage battery furnishes the current required for ignition, lamps and signals; but at greater speeds the dynamo does the work, and when the current output is more than can be absorbed by ignition and lamps, the excess goes to the battery. The governor takes effect when the current becomes equal to all demands, whether light or heavy, and prevents over-production and consequent damage to the apparatus.

tect it from accidental damage and has an aperture through which the light shines. Each of the controls is provided with a lock of its own, so that it can be left in any desired position without fear of its being tampered with.

The Alphabet Brought Up to Date.

"As simple as A-B-C" is an expression often heard when a motorist gets to discussing the merits of his favorite car. It was recently used by William W. Bride, a Washington attorney who owns an E-M-F "30." This method of alphabetical praise must have been overheard by Mr. Bride's little daughter, aged four, who had recently "learned her letters," for when asked to demonstrate this accomplishment before a gathering of friends, she remarked:

"A-B-C-D-E-M-F," at which juncture she was not unnaturally interrupted by a burst of laughter.

SAVING TIME IN THE FACTORIES

Some of the Many Unusual Methods Employed—Even a Man With a Horseshoe Plays a Useful Part.

There are few other industries in which production methods are systematized and routine work facilitated to the extent they are in a large automobile factory, and it is seldom, if ever, that the average owner has opportunity of learning of the hundreds of ways in which work is expedited and overhead expense kept at its lowest ebb. In order to keep production cost down, work must be done in the shortest possible time, and the necessity of saving minutes, or even seconds, has resulted in the invention of a myriad of time-saving devices and methods. Though the use of highly perfected automatic machinery has contributed in no small degree to the general saving, there are other things as well which are equally as important, though they seldom are brought to the attention of outsiders.

For instance, there is what is known as the call bell system, and this in itself has proven such a valuable feature that it is to be found in practically every large factory. Even in small factories it is valuable, for a plant need not be very large for considerable time to be lost in searching through it all for some individual who is wanted at the other end of the shops. In the larger factories, the president, the vice-president, the chief engineer, or any other individual who is likely to be wanted almost at any minute, probably at the far end of the works, is allotted a particular number of rings. From a central switchboard, where all inquiries are made, the bells throughout the whole shop are set ringing the call for the person who is wanted, and wherever that person may be he is apprised at once and gets into immediate communication with the office by means of the intercommunicating telephone system. In this way valuable time is saved and the work is expedited.

There also is a variation of this system whereby different colored lights are used for the various heads of departments. This system is susceptible of wider adaption, as, for instance, the combination of several lights of different colors may be made to signify that some particular person desires to see some other person, and if a return system is used, the person called quite easily can signify whether or not he considers it desirable to be "in" or "out," according to the personality or the mission of the caller.

Similarly, wonderful stories of the easy lives that testers live have been circulated, but in truth they are not quite as easy as generally is supposed. In reality, a tester's life is one long hurry, and to help him in hurrying not a few clever devices have

been perfected. As is generally known, every finished chassis is given a road test before it is turned over to the paint shop or to the body shop, where the finishing touches are put on it. To facilitate testing, it is the general practice to fit to the chassis some form of light body which provides a seat for the driver and also room for three or four bags of sand for ballast. Usually, such bodies have fixed to them the ignition apparatus, if it consists of a coil and batteries, and the gasoline tank. To attach the body to the chassis clamps are provided, and the gasoline connection is made by means of a quick detachable coupling. All of which is done to shorten the time required to complete the testing.

But the actual road test which the vehicle gets, however, is none the less rigorous, as many a venturesome person who has elected to ride with a tester can vouch for. The cars are slammed and banged over the roughest roads it is possible to find—at high speed, too—and one of the favorite "stunts" of the testing fraternity is to jam the brakes on and skid the car completely around at high speed—a daring and skilful performance that usually causes strangers to gasp. Needless to say, such procedures are extremely severe tests not only on the transmission elements and the steering connections, but on every other part of the car as well. Generally, special wheels and tires are used in such road tests, these being removed afterwards and others put on in their place and these in turn given a short road test.

After the car has undergone the proper road test, the chief tester attaches red or blue tags to the several parts of the car, such as the motor, the steering gear, the rear axle assembly, the transmission, etc., and on the tags is noted the fact that the parts are "O. K.," or if they require changes or adjustments these are noted. Before the car is shipped, it is given a short final test, and the sight of a lot of such cars flying around with these colored tags fluttering in the breeze is an odd one to strange eyes. In some plants the tester leaves by an exit where a clerk takes the number of the car and stamps the time of day on one of the tags, the same process being repeated when the car is returned, the tester turning the tag in at the end of his day's work. In this way the factory officials keep "tabs" on the testers, and "joy-riding" and theft are prevented.

There are other things, however, which must be tested, but with which the regularly employed corps of testers has nothing to do. These are embraced in the hundred and one little things—both mechanical features and accessories. These are tested under actual service conditions on the private cars of the president, the vice-president, the engineers and the superintendents or heads of departments. There are few of the higher officials who do not own cars and drive them to and from their homes and the factory, and there seldom

are two which are equipped with the same devices. Sometimes a single private car will literally bristle with such devices, all undergoing a real test under conditions which will obtain when they are fitted to customers' cars. Of course, not all these devices "pan out" as well as might be expected, and when this happens they are either discarded or else they are so modified as to make them efficient and practicable.

Even in the testing of cylinder castings, the same careful attention is given to the saving of time. In not a few factories, water jackets are tested to withstand 100 pounds cold water pressure. All the openings are plugged up except one, and to this one the hose to the water supply is connected by means of quick detachable joints similar to those which are used in making connection between the air pipes on railroad cars. Of course, where only a very few cylinders are tested, such methods scarcely would pay, but where the number of cylinders tested in a day runs well up into three figures, and in some cases into four, it readily may be appreciated that considerable time is saved.

For moving bodies, large, wide trucks are provided, and the bodies are loaded on them several at a time and so placed and covered that they cannot be harmed in transit. They are carefully covered with tarpaulins to exclude rain or snow, and as a number of them can be moved at a time, considerable time is saved in this way. Special trucks, fitted with racks, for conveying radiators and other parts, also are used, and all of these modern methods save time and therefore reduce production cost.

In one factory there daily is enacted a scene which might well cause the uninitiated to stare in undisguised wonder. Apparently aimlessly, a man wanders around the immense yards carrying a large horseshoe magnet. Occasionally he stops momentarily, points the magnet at the ground, and then resumes his wandering. Inquiry or investigation reveals the fact that he really is working—that he is employed to do just what he is doing. His particular job consists in collecting nails and other small scraps of iron or steel which, if left on the ground, might puncture or otherwise damage tires. The magnet is a quick and easy means of picking up the nails. And this is another of the little things that keep down production cost and enable factories to turn out cars in the shortest possible time.

When Tires Are Not Worth Retreading.

Using a tire until the rubber tread is all gone and the underlying fabric begins to wear is permissible only if the motorist has so much money he doesn't care how many tires he buys. If the fabric is intact the tire can be retreaded and used for many miles, but the destruction of the fabric, which is the backbone of the tire, precludes retreading.

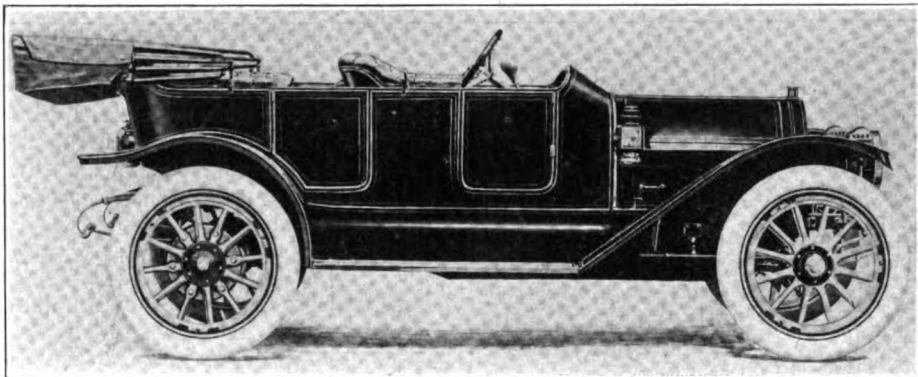
LARGER BORE IN CUTTING CARS

Increased Cylinder Dimensions to Give Greater Power—Pump Cooling System for All Models—Other Refinements.

In increasing the cylinder dimensions of the motors in Cutting cars, which alteration constitutes the principal divergence from previous practice, as exemplified in the products of the Clark-Carter Automobile

and measured $4\frac{3}{8} \times 4\frac{1}{2}$ inches bore and stroke, respectively, this year is rated at 40 horsepower in conformity with the increased cylinder dimensions, which are $4\frac{1}{2}$ inches bore and 5 inches stroke; cylinders are cast individually in this case. Though the rating of the largest motor has been reduced from 60 to 50 horsepower, it remains practically the same as its immediate predecessor, the cylinders being cast in pairs and measuring $4\frac{3}{4}$ inches bore and $5\frac{1}{4}$ inches stroke, as heretofore.

pump of the same general type as is used on the other motors. Lubrication also is carried on in the same way in the several motors, oil being forced through a hollow crankshaft by means of a gear pump. In this way the main bearings are lubricated and sufficient oil is thrown off the connecting rod big end bearings to lubricate the cylinders and wrist pins. The whole lubrication system is self-contained in the crankcase, the oil being strained and kept in constant circulation. The timing gear train is



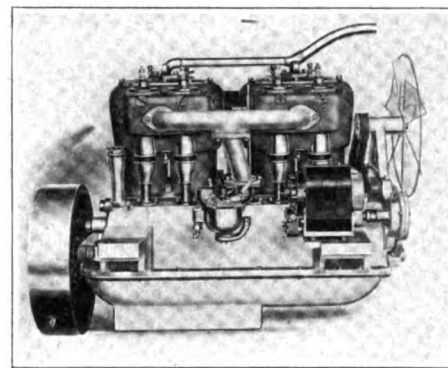
THE 50-HORSEPOWER, FIVE-PASSENGER MODEL AT \$1,850

Co., Jackson, Mich., as they will be marketed during the coming season, it is explained that while the slightly smaller motors always have been equal to the claims which have been made upon them, the purpose of the change is to provide a greater surplus of power than has been obtainable heretofore. Though the line still embraces four separate chassis, but three sizes of motor will be used instead of four. Also, two new body styles have been added, one of them a five-passenger torpedo, which is mounted on the 30-horsepower chassis, and

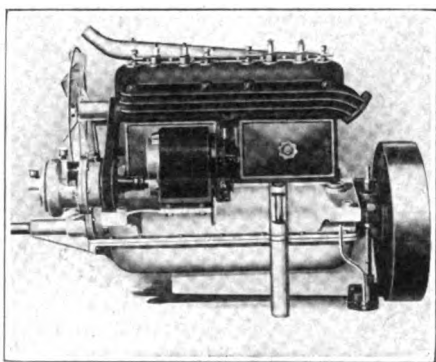
Structurally, except for the slight changes in cylinder dimensions which have been noted, all three motors remain substantially the same, the faith of the manufacturers in continuing them in their present forms being warranted by their past records for reliability and efficiency. Ignition in each case is effected by means of a Remy low tension magneto with dash coil of the

located in the crankcase, one of the gears being arranged to operate in an oil pocket and convey the lubricant to the others.

Regarding the transmission elements, the two smaller chassis and one of the larger ones, model F-60, remain practically unchanged except in minor respects. The chassis of model T-55, however, which is very similar to the one which was used in



INTAKE SIDE OF THE CUTTING "50"



THE 30-HORSEPOWER CUTTING

the other a similar model fitted to the 50-horsepower chassis.

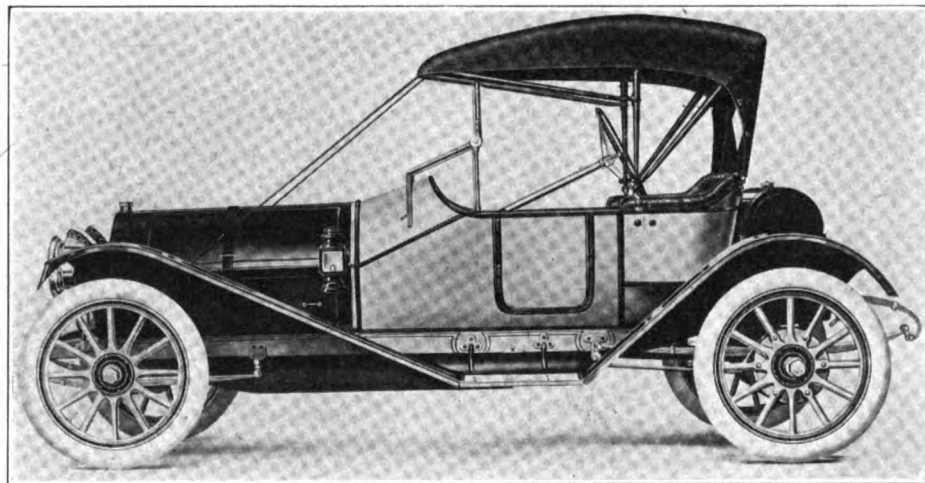
In the case of the 30-horsepower chassis, the cylinders have been increased in bore from $3\frac{3}{8}$ inches to 4 inches, the stroke remaining the same at 5 inches. The cylinders are cast in a single block with the valves all on one side and their stems neatly enclosed by means of light aluminum plates, which may be removed by loosening two thumb screws. The motor, which last year was rated at 35 horsepower

same make, and a battery system for reserve. On the smaller cars, models A-30, D-35 and T-35, being of 30 horsepower, and model D-40 or 40 horsepower, dry cells are used for the battery system. Storage batteries are used on the two larger models, T-55 and F-60, both of which are equipped with the 50-horsepower motor.

The cooling system used on all motors now is the same, the thermo-siphon system which was used on the 30-horsepower engine having been replaced by a centrifugal

last year's 40-horsepower cars, and is identical with the other present 50-horsepower model, except as regards its change gear mechanism, now has a full-floating rear axle. Except in model F-60, in which is retained the same four speed change gear mechanism which last year was one of its features, three speed gear boxes are used; all are selectively operated. The clutch in all models is of the multiple disk variety.

In connection with the control mechanism, a noteworthy change has been made in



THE 30-HORSEPOWER CUTTING IN ROADSTER FORM

the 30-horsepower chassis in the adoption of separate pedals for the clutch and brakes in place of the single pedal which previously served this purpose. Both sets of brakes in all the models are located on the rear wheels, the service brakes being external contracting on 14-inch drums in all but model F-60, in which the drums are 16 inches in diameter, and the emergency brakes being internal expanding. The springs in each case are semi-elliptic in front, while those in the rear are three-quarter elliptic.

Tires have been increased in size throughout the line and on all models they are the same both front and rear. The 30-horsepower models are equipped with 34 x 4 inch tires instead of 32 x 3½ as heretofore; on model D-40, the size has been increased from 34 x 3½ to 34 x 4 inches; model T-55 is shod with 36 x 4 inch tires, and on model F-60 the size now is 37 x 4½ instead of 35 x 4. Both of the 50-horsepower models are equipped with Booth demountable rims. The wheelbase of model F-60 has been increased two inches to 124 inches, and on all the others it remains the same, namely, 116 inches.

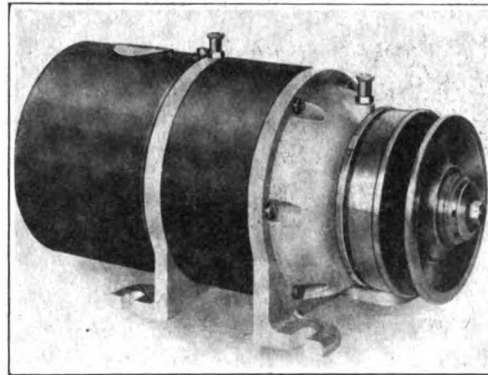
Not all the refinement which has been made has had to do with the mechanical part of the cars, however. The bodies, as well, have been given a goodly share of attention with a view not only of enhancing their appearance but of increasing the comfort of passengers as well. Curves have been rounded out, door latches and hinges and other projections have been hidden wherever practicable, and by way of adding an artistic touch, as well as increasing the durability of such necessities, lamps and tonneau fittings are finished in nickel plate and black enamel, a finish that is increasing in popularity because of its rich appearance and also because it is more easily kept clean than polished brass.

With regular equipment, which includes Prest-O-Lite tank, top and windshield, as well as the usual complement of tools and other accessories, the price of model A-30, which is a torpedo roadster, is \$1,200. Model T-35 is one of the new ones which just has been added to the line. It is a straight-line torpedo touring car mounted on the 30-horsepower chassis, and sells for \$1,250; the car accommodates five passengers, as does model D-35, which is a standard closed front touring car, mounted on the same chassis, for which the list price is the same. The 40-horsepower chassis mounts a five-passenger touring body similar to the one mounted on the 30-horsepower chassis, and the price asked for it, with full equipment, is \$1,500. Model T-55 is the other new model, and is a five-passenger torpedo touring car, which lists at \$1,850. Listing at \$2,250, model F-60 is substantially the same roomy seven-passenger closed-front touring car as heretofore, the price, including full equipment, of gas tank, top, windshield, tools and accessories.

LIGHTS LAMPS AND SOUNDS HORN

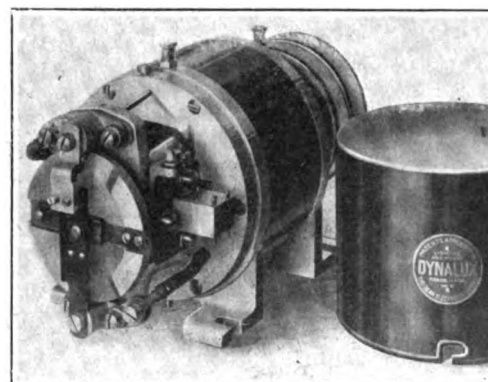
"Dynalux" System Serves Several Purposes —Speed Regulator That is Practically a Speed Limiter.

Only a few years ago a motor car that carried a full set of acetylene lamps was considered very well equipped, so far as illumination went. It is one of the signs of the times, however—a straw showing which way the wind blows—that the car of 1912, in order to be up to the minute,



DYNALUX LIGHTING GENERATOR

must have a complete electric light plant capable of turning night into day, not only on the road ahead of the car, but also in the vehicle itself. Besides this, electric current is available for ignition, signaling, cigar lighting—anything for which a moderate current can be used. Such a little plant is that of the Dean Electric Co., of Elyria, Ohio, which has even gone a step



DYNALUX GOVERNING MECHANISM

further and included in the system an electric starter for the engine, which, however, requires a special installation.

While the "Dynalux" system, as the Dean company calls it, resembles other electric lighting systems for automobiles in that it has a storage battery and an engine-driven dynamo, it has certain novel features that are interesting, and, what is more, are of a practical nature. For instance, the dynamo has no extra apparatus for controlling the current, such as outside regulators or meters; and in "wiring up" only two leads

are carried to the generator. It makes no difference which is the positive or which the negative pole. This not only simplifies the work of wiring but it removes the danger of damaging or possibly ruining the battery by charging in the wrong direction. A speed regulator, which becomes operative only when the engine runs at an excessive rate, prevents unnecessary wear on the bearings, commutator and brushes and tends to increase the life of the wearing parts. This device is called the "speed limit."

A device that has been worked out in connection with the Dynalux system, but can be used with any electric lighting outfit of a similar character, is a tell-tale connected in circuit with the electric tail lamp to inform the driver if his tail light goes out, thereby relieving him of a doubt that must be ever present when no such indicator is employed. The device is called the "Centurion" and consists of a special form of relay which shows a signal or lights a small lamp when the tail light goes off duty. The signal lamp may be any small one already in use on the dashboard, as long as it is one that is used only occasionally. And not only will the "centurion" tell tales on the circuit with which it is connected, but it will show its signal or light its lamp if it goes wrong in its own vitals. The device is designed as an improvement on the plan of having a tell-tale lamp that burns constantly, using current and at the same time wearing itself out.

Another thing that can be operated on electric current is the Tuto electric horn, a specialty of the Dean company. In addition to the Tuto, which has been on the market for some time, a new signal device has been brought out, operating on the same hammer-and-diaphragm principle and having two tones, in which respects it is like the Tuto, but designed to sell at a considerably lower price. The new model is called the Tutoette and is sounded by pressing a button placed on the steering wheel or column.

Good Way to Ruin Storage Batteries.

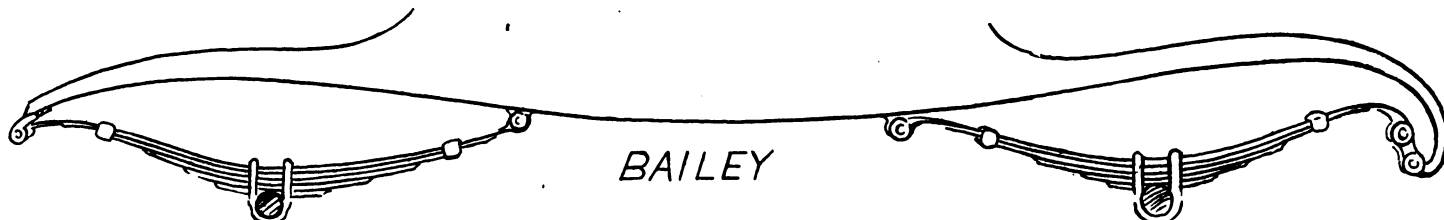
One of the worst things that can be done to a storage battery is to allow it to stand in a discharged condition. If this is done the plates become sulphated, and while sulphating can be remedied by a long charge at a low rate—called by the electrical people "soaking"—serious sulphating means the permanent injury and perhaps the ruining of the battery. The best way to keep a battery in a healthy condition is to work it normally and re-charge it when necessary, not attempting to get the very last ampere out of it or, on the other hand, charging before a reasonable discharge has been taken. A battery that is to stand idle for some time should be fully charged and the electrolyte should cover the tops of the plates, which never should be allowed to become dry.

Wherein Electric and Gasolene Suspensions Differ

To those who have ridden for the first time in almost any one of the several electrics on the market, it is doubtful if there is any more impressive feature than the easy riding qualities which this class of vehicle as a rule possesses. On more than one occasion it has been remarked that

car springing is the "poorest accomplishment of the modern car." In accounting for the retarded progress he scarcely utters a new thought in saying that it is due to the "impossibility of measuring in terms of any unit the value in comfort of any one spring over another."

in so many others, and it is necessary to be content with the transmission of the smallest amount of shock possible. As simple as the matter seems, however, there exists considerable misconception of exactly what causes the shock, though this is a point which must be understood properly

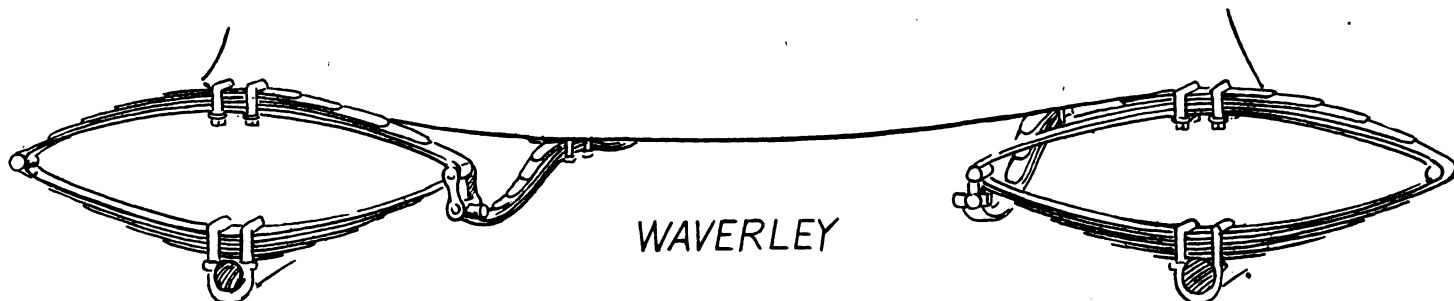


they seem fairly to glide over the bumps and uneven spots in the roads with scarcely any appreciable movement of the body of the car, and though it generally is known that the spring suspension of the individual car is responsible for the effect obtained there are few who appreciate the differ-

ences which exist in the methods of springing electrics and gasolene cars. Incidentally, there are even fewer who have attempted to reconcile the evident differences in "ridability" to the apparent differences in spring suspension.

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When a vehicle is traveling over a perfectly level surface it suffers no shock. But the instant the wheels encounter an obstruction two distinct shocks, one as they mount it and the other as they again

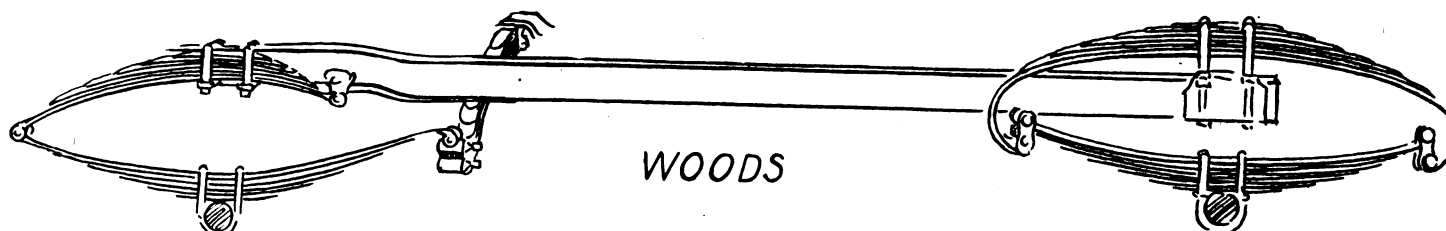


ences which exist in the methods of springing electrics and gasolene cars. Incidentally, there are even fewer who have attempted to reconcile the evident differences in "ridability" to the apparent differences in spring suspension.

Of course, the spring suspension of a

to be bounced out on even a moderately bad road, and there is small likelihood of the many nuts and bolts in the car remaining in their respective places for more than a very short time. It is necessary to strike a happy medium between the two and as no two cars are exactly the same,

reach the roadway, are transmitted to the springs. But it is only at the instant that the obstruction is met that the shock takes place. The rise and fall of the vehicle do not cause shock as long as the vertical motion occurs at constant velocity, nor does the magnitude of the motion or



car, whether it be of the electric or gasolene variety, embraces much the same problem, and it is safe to say that seldom does any other problem connected with the building of automobiles disclose quite so many complications under investigation. One well-known engineer who has had more than a score of years experience in automobile manufacture, both in this country and abroad, is quoted as saying that

any more than the minds of any two designers are precisely alike, almost any number of solutions of the problem have been reached—and none of the number can be considered absolutely correct.

The ideal spring, if it could be obtained, would so support its load that none of the movements of the axles would be transmitted to the body. But it is impossible to reach the ideal in this case, as it is

its rapidity cause shock or discomfort. Which is to say, it is not the vertical distance traveled nor the velocity acquired, but, instead, it is the quickness with which the vertical velocity is acquired. In mechanical language, this is styled acceleration or the rate of change of velocity. The class of motion derived is styled periodic.

Without going too deeply into the mat-

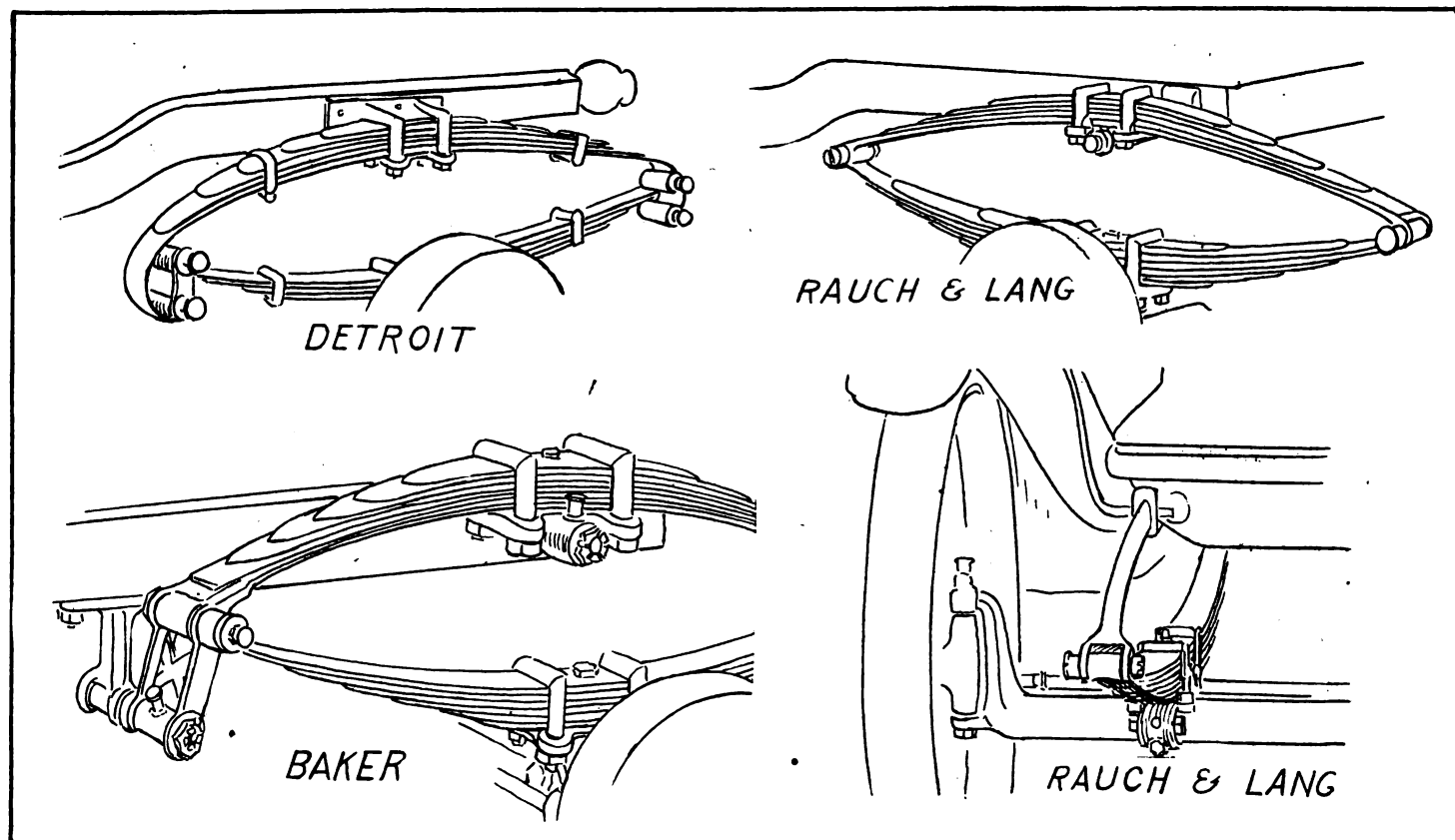
ter it is sufficient to state that of the cardinal points in the design of efficient springs, the first is that the period of oscillation must be slow, in order to secure adequate acceleration insulation, and the second is that there must be sufficient internal friction in the springs to effectually damp out the tendency to continued oscillation. Good springs have a period varying between 80 and 100 double oscillations a minute; it has been demonstrated that more than this causes discomfort and less entails the use of inordinately long springs and causes difficulty in construction. Also the range of motion with slow oscillation,

travels at a much slower average rate of speed than does the gasoline pleasure car and this in itself contributes largely to the difference. The reason for this is, as has been pointed out, that it is the quickness with which the vertical motion is acquired that constitutes a shock. As the electric vehicle travels more slowly its wheels meet obstructions with less force and the consequent vertical motion produced is slower and hence the actual shock is less.

Then there is another factor which very seldom is thought of. It is that in the average electric car the passengers' seats are very near the center of the chassis

1,000 and 1,300 pounds. The proportion which has been stated, having been found by experience to be correct, should go far toward disproving the erroneous impression which is held by not a few to the effect that owing to the weight of the batteries, the total proportional weight of the electric car on the tires is greater than it is in the case of the gasoline vehicle. In other words, it is a mistaken idea that the average electric vehicle is comparatively heavy. Quite the reverse, it is comparatively light.

In the form of the springs used in electric pleasure cars, there is considerable



CONTRASTS IN METHODS OF SPRING SUSPENSION USED ON ELECTRIC PLEASURE CARS

necessitating long springs as it does, increases the required distance between the axles and the body and makes necessary large clearances and high frames.

Though all of this is, perhaps, a little bit away from the subject of the differences between the springing of electrics and gasoline cars, it nevertheless has a direct bearing on it, inasmuch as it shows in brief a few of the difficulties which have to be overcome in either case and the conditions which must be met. That the electric vehicle is ahead of its gasoline prototype as far as easy riding is concerned, is the opinion of not a few who are engineers, and a greater number who are not engineers. The fact remains, however, that there really is a marked difference in the majority of cases and there are several reasons why such a difference may be considered legitimate.

In the first place, the electric vehicle

frame and thus the benefits of both front and rear springs are felt. In fact, the passengers are in reality suspended between the two sets of springs. This, in turn, makes for better weight distribution, and when, as is the case in a great many electrics, the batteries are carried in two sections, one at either end, the proportion of the total weight supported by each pair of springs is equalized better.

Regarding the relative total weight on the springs of the electric and gasoline car, it is the opinion of several engineers who have made a study of the subject, that the average weight supported on the springs of an electric car is between one-half and two-thirds as much as in the case of the gasoline car. Which is to say, that if the average weight of the average gasoline car on the springs is, for instance, 2,000 pounds, then the average weight of the electric car on the springs is between

diversity. Semi-elliptic, three-quarter-elliptic, and platform suspensions are used to very nearly the same extent as they are for gasoline cars. For electrics, however, it is more common practice to combine two or more of these forms and thus obtain the benefits of both. Though it has been suggested that the form actually used depends largely on sentiment or the desire to produce a harmonious appearance, and that any car can be fitted with semi-elliptic members of the proper periodicity and strength, there is real reason in the adoption of combination forms.

The manufacturers of the Bailey electrics, however, prefer to stick to the semi-elliptic type springs though their shape and the method of attachment is quite different from the usual spring of this type as used on gasoline vehicles. Both the front and rear springs are placed directly below the side frame-members. At the rear, the side

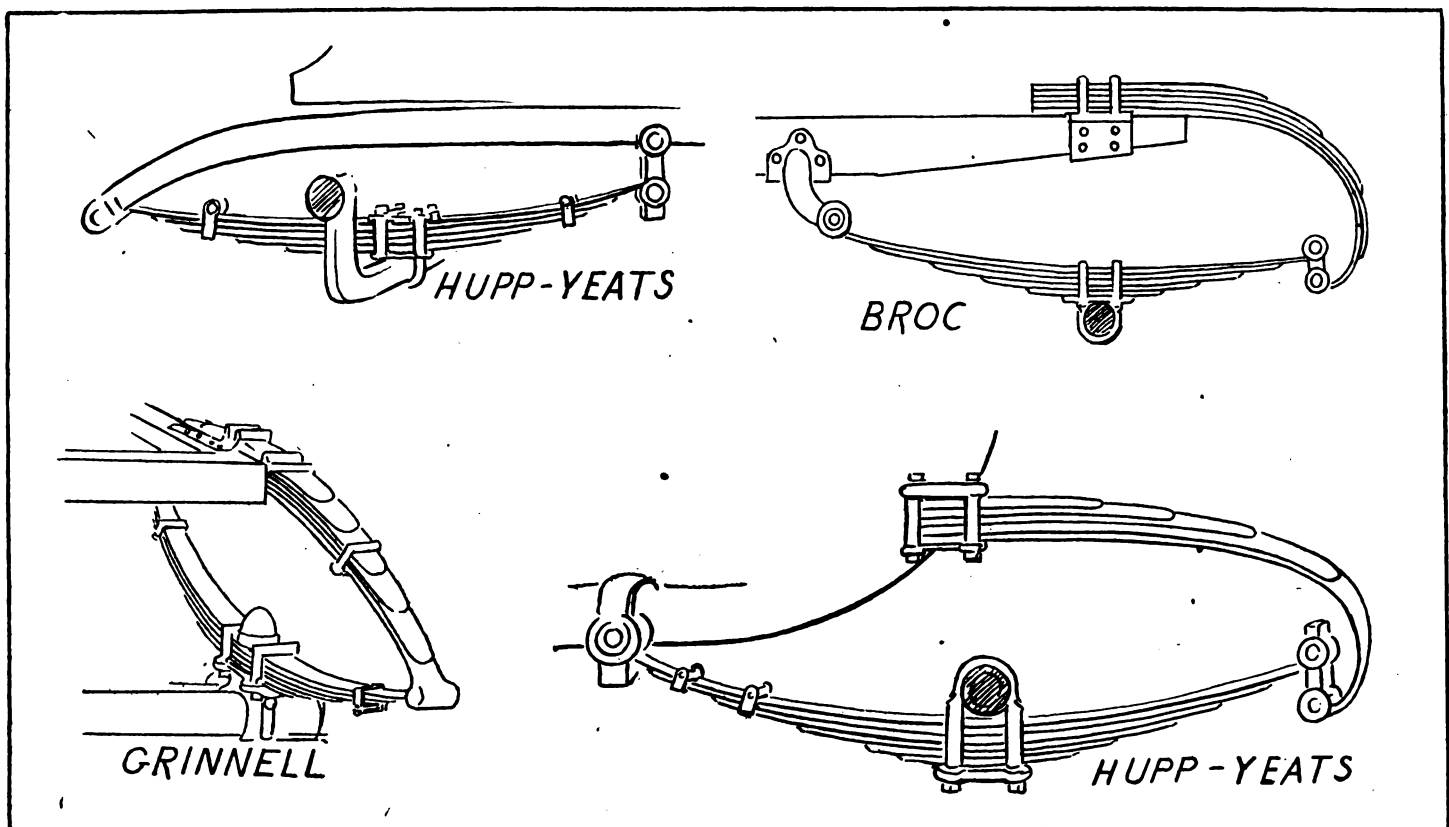
frames are extended downward in a graceful curve eliminating the usual goosenecks and serving as spring hangers themselves. The frames extend out over the springs, to which they are attached by means of hanging links. The front ends of the rear springs support the frame upon heavy standing links which extend up inside the frame in a casing. Similar standing links serve to fasten the rear ends of the front springs, the front ends being attached to sockets without links.

As may be seen in the accompanying illustration the ends of the Bailey springs are curved in the reverse direction to con-

double the damping effect for the same length as can be obtained with the ordinary type of semi-elliptic member. This is because there is double the friction surface between the spring leaves. It follows, therefore, that a slightly greater degree of resiliency with the same periodicity can be obtained and for this reason full-elliptic springs are favored when solid tires are used.

The Woods suspension is not unlike the Waverley in the use of a cross semi-platform spring at the rear of the front members, but the rest of the suspension is entirely different. Scroll full-elliptic

only at the center, a heavy bracket and the usual spring clips serving this purpose. The Rauch & Lang rear springs also are full-elliptic but they differ from those used on the Detroit in that they are not scroll members. The method of attaching them to the frame also is different and is in the form of a swiveling bracket, the manufacturers having deemed this method superior to rigid attachment in the anticipation of freer spring play. Of course, where the drive is transmitted through the springs instead of through the usual torsion and radius members, it is essential that the springs be rigidly attached unless special



SOME FURTHER VARIATIONS IN THE ARRANGEMENT OF ELECTRIC VEHICLE SPRINGS

form to the curvature of the frame. The purpose of thus forming the springs, however, is merely to enhance the appearance of the car. The principal part of the load, which is the battery, is carried low down between the axles and not over them as is the general custom.

The spring suspension on Waverley cars is unusual and decidedly novel. The weight is supported both front and rear on full elliptic members, one end of each of them being attached to semi-platform springs mounted at their centers on cross frame members. These semi-platform cross springs do not support any of the weight of the car, however, as they generally do in other constructions. Their purpose is to take the torsional strain of starting and braking and to assist in the dissipation of horizontal road shocks.

One of the principal reasons for the use of the full-elliptic spring is that it permits

springs are used in the rear and these are not anchored to the frame at their front ends, in order to allow of slightly greater spring play. For the front suspension a form of three-quarter-elliptic members is used, the rear ends of the lower halves being shackled to the ends of the cross semi-platform member. The top halves, or rather three-quarters, of the springs are attached to the frame by means of the orthodox spring clips and the rear quarters of the top members are attached to brackets on the side frame members.

Though the majority of manufacturers of electrics agree on the use of full-elliptic springs for rear suspension, that there is a wide diversity of opinion regarding the exact form of the springs and their method of attachment is evidenced in the accompanying sketches. In the Detroit, for instance, scroll full-elliptic springs are used and they are anchored to the chassis frame

provision is made for the taking up of the driving stresses.

Baker rear springs also are attached to the chassis frame by means of swiveling brackets though they also are fastened at their forward ends by long shackles. The object of these shackles is to insure perfect alignment of the springs under all conditions of road surface and also to permit of the springs taking the place of radius and torsion rods. The Rauch & Lang front springs, which are illustrated in the same group, are unusual in that a long gooseneck is used to connect the front of the semi-elliptic members to the chassis frame.

The rear springs used on Grinnell electrics are of the full-elliptic variety, too, and though their method of attachment is not unusual, the length of the spring clip is slightly longer than generally is employed. The use of three-quarter-elliptic rear springs is confined to comparatively few

manufacturers of electrics despite the fact that its majority over other types in use in the gasoline vehicle field is considerable. They are used on Broc electrics, and it is claimed for them that their rate of periodicity is lower and that the degree of resiliency obtained is greater in proportion than can be obtained from other types in which the same amount of spring play is allowed. They are rigidly attached at their forward ends and serve to transmit the drive.

Though the advantage of underhung suspension in the lowering of the center of gravity of a car is fairly well known and this method is used on several makes of gasoline pleasure cars, only one manufacturer of electrics has seen fit to adopt it. The rear springs of one model of the Hupp-Yeats electrics are hung below the axles, as shown in the accompanying illustration; the front springs, however, are of the conventional semi-elliptic overhung type. Underhanging the springs effects their resiliency but little, if any, but it is not with this end in view that springs are so mounted. The beneficial effects are embraced in the lower center of gravity which is gained and the reduced tendency toward sidesway and skidding.

As has been stated before, the problem of spring suspension is more than ordinarily complicated and though great advances have been made in the methods in use there still is warranted considerable deep study. Spring wheels and numerous other devices intended to ease the mechanism of cars and to increase the comfort of passengers almost daily are being placed on the market, and it is reasonable to expect that there will be no appreciable diminution in the production of such devices for some time to come. Some of them are good, though it is difficult to get at the degree of their goodness because it is impossible to measure their action mechanically. Similarly, they cannot be measured by the sensations of the passenger, and there remains only the alternative of scientific analysis of the claims made for them. But this, too, often may be unsatisfactory, for not always can cold scientific facts be reconciled to the sensations of the occupants of the car. That there eventually will be springs even better than those that are in use at present is highly probable in the light of the development of other parts of cars in general. Whether they will be hydraulic, or pneumatic, or coil, or leaf, or anything else no man can tell at present.

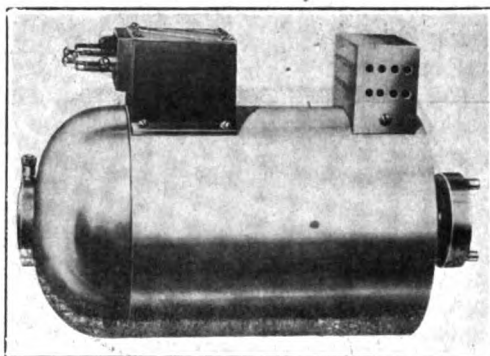
Will Produce Eight-inch Truck Tire.

After considerable experimenting, the United States Tire Co. has perfected a new pneumatic tire of unusual size for use on five-ton commercial vehicles. It is of eight-inch section and will be manufactured in various diameters to suit requirements. A special fabric is used and the method of wrapping also is different from the usual.

RUSHMORE DEPARTURE IN DYNAMO

Lighting Apparatus Claimed to Render Regulator Unnecessary—Designed to Be Operated at Engine Speed.

With the object of avoiding as much as possible complication in automobile electric lighting systems, the Rushmore Dynamo Works, of Plainfield, N. J., has completed and placed on the market a generator that is radical in that it requires no extraneous appliances for the regulation of the current. After considerable preliminary work the company has evolved a method of winding which permits the generation of useful current at a rotative speed as low as 200 r. p. m., but will cease to increase the output when the current reaches the maximum for which the dynamo is designed, which is 14 amperes.



RUSHMORE AUTOMATIC GENERATOR

The generator is designed for use in connection with a storage battery, and the voltage of the current, when charging is in process, is governed by the requirements of the battery, the resistance and the voltage increasing as the charging approaches completion. The current generated is of the proper potential and amperage, at normal rotative speeds, for lighting the lamps, and the generator is capable of doing this without assistance from the battery. Therefore the owner of a car equipped with the Rushmore system has only to close the generator switch, when the outfit automatically takes up its work, the dynamo keeping the battery properly charged at all times. There is, of course, a cut-out which opens the circuit between generator and battery when the speed of the former falls so low that the battery voltage would exceed that of the generator. In this case the battery would discharge itself through the generator if there was no means of interrupting the circuit. The result would be the complete loss of the charge in the battery should the circuit remain closed for some time, and there might be injury to the windings of the automatic generator as well.

When the engine is not running, or is running so slowly that the dynamo is not

rotating fast enough to generate the current required to overcome the resistance of the storage battery, the latter furnishes all the current for the lamps. As the speed increases, however, the dynamo current becomes stronger until it closes the cut-out and takes up the work of supplying the lamps. At a speed of 600 r. p. m. the current is about 10 amperes which is enough to supply all the lamps and leave a surplus. The surplus then goes to the battery, replacing the current used from it during the inactive periods of the generator. At a speed in excess of 600 r. p. m. the current output increases very slowly indeed until the maximum of about 14 amperes is reached. No matter how fast the generator runs, it cannot exceed this output. At no time is the generator speed so high as to be mechanically dangerous, as the speed is the same as that of the engine—quite a slow rate for a small machine. The makers state that when the generator is running at normal speed and giving a current of about 10 amperes or more, changes in the number of lamps in circuit, or the switching on or off of the whole lamp load makes very little difference in the ampere output of the generator.

In addition to this generator, the Rushmore company builds a machine which, though smaller, has the same capacity, viz: 6 volts and 13 amperes. The smaller type does the same work as the larger by running at from 2 to 2½ times engine speed. The small generator weighs 23 pounds and is 5½ inches in diameter and 8½ inches long, exclusive of the shaft coupling. Both are bi-polar machines of the cylindrical ironclad type. They may be used in connection with any good storage battery of 80 to 100 ampere hours capacity.

Flying Fan Blade Kills Pedestrian.

Circumstantial evidence, which on many occasions has been sufficient to send a murderer to death, is likely to be the means of keeping George H. Sherman, a motor truck driver of Utica, N. Y., in jail for a longer period than he expected to be when first arrested. The case is an unusual one, in that it involves that comparatively rare accident, the snapping of a fan blade on the motor, while the car is in motion. According to the evidence collected, the body of Daniel Donovan, a stone mason of Deerfield, N. Y., was found on the road between Utica and Herkimer, with a piece of metal sticking in it. This metal later was recognized as part of an automobile fan blade. Sherman had been driving a truck along this road and had collided near Herkimer with a peddler's wagon, for which he was arrested. An examination of the truck showed one of the fan blades to be broken, and when the piece found in Donovan's body was fitted to Sherman's fan it matched perfectly. Sherman now faces two serious charges: one for causing the death of Donovan and the other for injuring the peddler in the collision on the road.

FOUR CYLINDERS FOR GRABOWSKY

Detroit Truck Maker Abandons Two-Cylinder Opposed Motor and Planetary Transmission—Other Changes.

Though retaining many of the distinctive features which heretofore have proven of genuine merit, the Grabowsky line of commercial vehicles, manufactured by the Grabowsky Power Wagon Co., Detroit, Mich., has suffered a most complete revision, the most important change being the substitution of four-cylinder vertical motors

the use of quick detachable water and gasoline connections. The cross member of the chassis frame is arranged to hinge outward after the removal of a single bolt when the entire power plant may be slid forward onto a special truck, or only partly removed to expedite inspection or adjustment.

Quite as important in its way as the change which has been made in the motors is the replacement of the planetary change gear mechanism which previously has been used in all the trucks by selectively operated three-speed sliding gear sets. As heretofore, the steering wheel is located at the left side of the chassis and the emer-

For the three-ton truck a 40-horsepower motor is used in which the cylinders measure five inches square and deliver 48 horsepower on the brake. The motor in the five-ton truck is rated at 44.1 horsepower, though this rating, too, is conservative, the actual output under a brake test showing 63 horsepower; the cylinders measure 5¼ inches bore and 5¼ inches stroke.

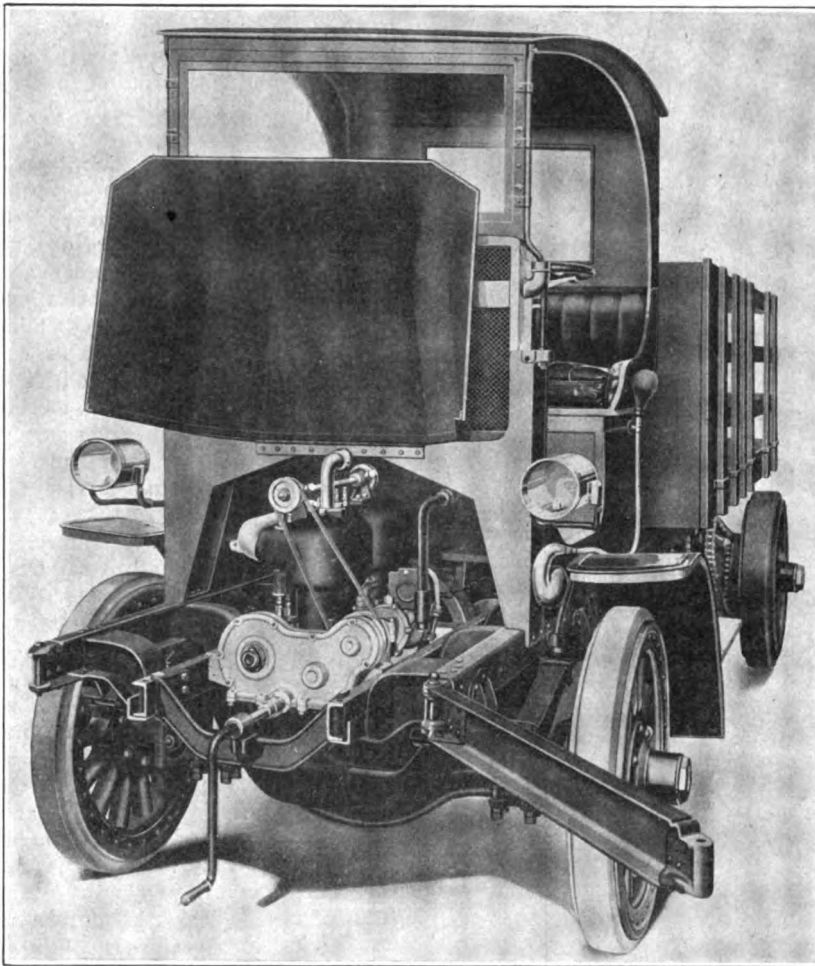
As all three of the motors are identical in construction except as regards their cylinder dimensions, a description of one fits them all equally well. Cylinders are cast in pairs with the valves all on the same side and in the positioning of the intake and exhaust manifolds, which are of liberal size, particular attention has been given the necessity for leaving the valves as accessible as possible. Reflecting the latest engineering practice, the crankcase is made of nickel aluminum alloy and is in two parts, the crankshaft being carried in the upper half. The lower half of the crankcase contains the oil reservoir.

Regarding the lubrication, the manufacturers have been at considerable pains to provide an efficient and economical system which is entirely automatic in operation. It is a combination force feed and splash system, the main bearings being fed under pressure by a shaft-driven pump, the excess oil serving to maintain a constant level under the connecting rod big end bearings which dip into the oil and splash it over the minor bearings and the cylinder walls. The oil is thoroughly strained before it is permitted to drain back into the crankcase reservoir. The timing gears are located in the crankcase and are positively lubricated.

Cooling is effected by means of an exceptionally large centrifugal pump and the radiator is so located that in case the pump should become inoperative through any cause circulation would be carried on by thermo-siphonic action. With regard to the radiator itself a new feature has been incorporated in its mounting which is a steel cradle pivoted at both ends. The motion of the cradle is restricted to avoid undue strain or rattle.

For ignition, a Bosch high-tension magneto is used principally, an independent Bosch system operating through a separate set of plugs being supplied for starting and for emergency. The battery equipment embraces a six-volt, 60-ampere-hour storage battery. To prevent the racing of engines or overspeeding, centrifugal governors operating on the throttle are regularly built into the engines. One of the interesting points in connection with the governors is that when they are set at the factory they cannot be altered without breaking the factory seal and thus disclosing the fact that they have been tampered with.

From the engines, power is transmitted to the rear wheels through the intermediary of multiple disk clutches and side chains in all the models, the alternate disks in the clutches being faced with Raybestos. As



NEW FOUR-CYLINDER GRABOWSKY POWER PLANT SHOWING DEMOUNTABILITY

for the two-cylinder opposed engines which in years gone by have constituted one of the distinguishing marks of the line. Also, there has been added a new model of five tons capacity, the complete line now including one, one and one-half, two, three and five-ton models.

In adopting the new motors, however, the advantage of the removable power plant which always has been a feature of Grabowsky trucks has not been overlooked. As has been the practice in the construction of previous models, both motors and change gear mechanism are mounted on sub-frames and may be removed quickly and easily, the work being facilitated by

gency brake and gear shift levers have been placed in the center of the footboard, permitting free access to the driver's seat from either side. Otherwise, the trucks have changed but slightly in general appearance, the adoption of a sloping hood over the engine tending to accentuate the general air of pugnacity and reliability which always has been one of their characteristics.

In the one, one and one-half and two-ton models the same size motor is used, the cylinder dimensions being 4¼ inches bore and 4½ inches stroke and the rated horsepower 28.9. On a brake test, however, the motor develops 35 horsepower.

has been previously mentioned the planetary change gear mechanism has given way to one in which sliding gears are used, the same type being used on all the trucks. The springs are semi-elliptic in the front and three-quarter platform in the rear. In all the models, the service brakes are mounted on the jack shafts and the emergency brakes are located on the rear wheels. Both sets are adjustable and are Raybestos lined.

The wheelbase of the one-ton chassis is 121 inches and the front wheels are shod with 34x3½-inch solid tires; the rear tires are 34x4 inches. The chassis price is \$2,200, and the available loading space of the standard body is eight feet by four feet. The one and one-half-ton chassis has 145 inches wheelbase and the tires are 36x4 inches both front and rear. The chassis price is \$2,550 and the loading space on the standard body measures 10 feet by five feet six inches. Both the two and three-ton chassis are built on 145 inches wheelbase also, the first being equipped with 36x4-inch single tires in the front and 36x3½-inch dual tires in the rear and the latter having 36x5-inch tires in front and 40x4-inch dual tires in the rear. The price of the two-ton chassis is \$3,000, and the loading space is 12 x 6 feet. The three-ton chassis lists at \$3,400 and the loading space is 12 x 6 feet.

The wheelbase of the five-ton chassis is 156 inches and it mounts a standard body having a loading space of 14x6 feet. The front tires measure 38x6 inches and those in the rear are dual 42 x 6 inches. The price of the chassis is \$4,500.

Long Hair and Short Hair for Cushions.

That little things in automobile construction make a great deal of difference in the final results is indicated by a few facts concerning such a minor detail as the kind of hair used in stuffing the cushions. According to an expert, the best hair, though the most expensive, is the most satisfactory not only from the point of view of comfort to the user of the car, but also from the makers way of figuring, because the good qualities are long in fiber and are easily stuffed into the cushions without waste, while the cheaper grades are short and much hair is lost while pulling apart previous to stuffing, and when in place it packs hard and makes an unsatisfactory job. It is said that moss, though still cheaper, is preferable to cheap hair.

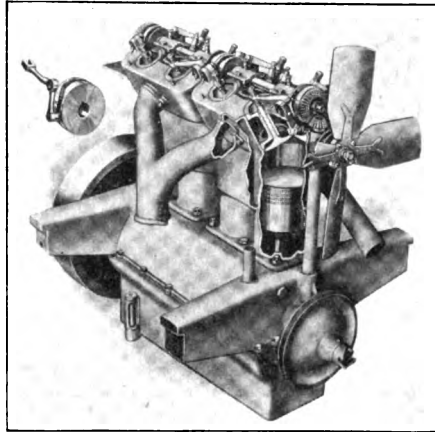
Assisting a Cold Motor to Start.

Sometimes a motor that is very cold refuses to start, though the ignition system is in first-class working order and the carburetter right. The trouble is usually that there is not sufficient heat to vaporize the gasoline, and often the trick can be turned by priming the cylinders heavily, using what in warmer weather would be an excessive quantity of gasoline. Sometimes a cloth wrung out in hot water and wrapped around the carburetter will suffice.

BARREL CAM FOR MITCHELL MOTOR

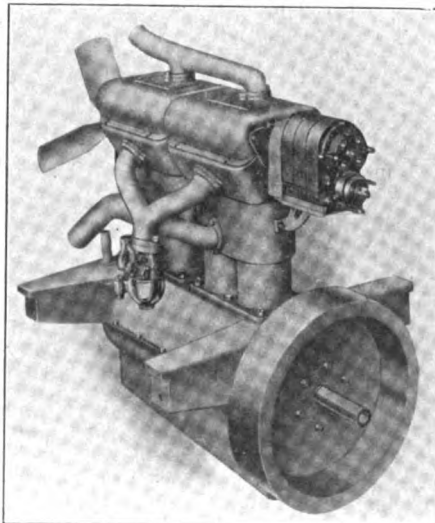
Ohio Tool Company Employs Novel Valve Mechanism—Magneto on Elevated Bracket—Other Features.

Motors having intake and exhaust valves located in the heads of the cylinders with stems inclined, operated by cams on a camshaft of the overhead type running in bearings carried above the cylinders, are not new, but there is real novelty in the grooved cam valve actuating mechanism



MITCHELL VALVE MECHANISM

embodied in the motor designed by R. C. Mitchell, of the Webster & Perks Tool Co., of Springfield, Ohio, which is shown in the accompanying illustrations. In working out this valve gear it was the object of the designer to evolve a system that would be positive and efficient in operation and that could be economically



EXTERIOR OF MITCHELL MOTOR

manufactured owing to the small number of parts required in its construction, and its sponsors are so well satisfied with the result that arrangements are making to place the Mitchell engine on the open market.

Instead of the conventional type of valve

gear in which the valve is lifted and held open by the action of a cam, and returned to its seat by a spring when the cam permits it to close, the new design employs a barrel cam, grooved, on an overhead camshaft. Motion is transmitted from the cam to the valve through a pivoted rocker arm, one end of which engages the valve stem while the other is a close sliding fit in the groove cut in the cam. This groove, instead of being a perfect circle cut in the cam, follows a sinuous path, so that as the cam rotates the groove moves the rocker arm and the valve with which it connects. The time of opening and closing and the period of opening are determined by the shape of the groove, and consequently the valve timing is permanent; the valve closing, like the opening, always occurs at the same time with relation to the position of the piston, regardless of the speed of the motor.

The exhaust valve is placed on one side of the cylinder and the intake valve opposite, with the cam between, and each cam actuates two valves. There are, therefore, but four cams for the eight valves of a four cylinder engine. Lubrication of the valve gear is effected by wicks taking their supply of oil from a reservoir containing sufficient lubricant for a month's ordinary running. The entire valve mechanism is enclosed in a substantial casing which is dust proof and water tight and also serves to deaden the click of the valves on their seats.

The camshaft is driven through bevel gears by a vertical shaft at the front of the motor, the vertical shaft being driven in turn by bevel gears from the crankshaft. The vertical shaft and its gears are also enclosed.

An interesting feature of the motor is the placing of the magneto on a bracket on the rear cylinder in line with the camshaft. In this elevated position it is well out of the way of flying oil, and, being at the rear of the motor, is protected from dust and water that may pass through the radiator. Inspection, oiling and adjusting can be readily attended to without the necessity for delving into the depths of the engine space. The magneto is driven from the camshaft by a pair of spur gears.

H. Voges, Jr., president and treasurer of the Webster & Perks Tool Co., thinks so highly of the engine that he is aiming at the formation of a company for the exclusive purpose of manufacturing these motors. Meanwhile they will be built in limited numbers on exclusive contracts.

To Reduce Millimeters to Inches.

The dimensions of motor cylinders, tires and other automobile parts are so often designated in millimeters that a rough and ready way of converting millimeters to inches is frequently useful. The easiest way is to figure 25 millimeters to the inch. The exact figures are 25.4 millimeters to the inch.

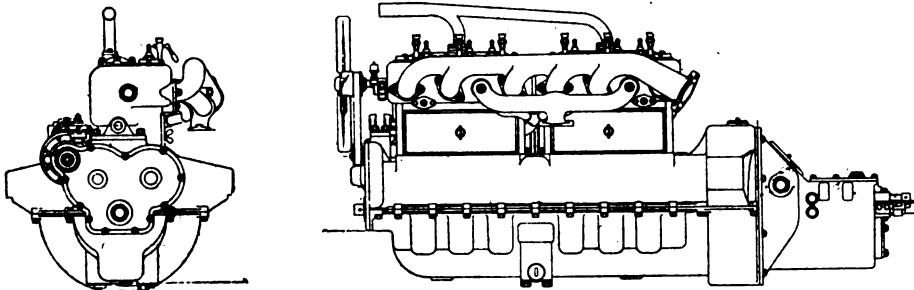
CONTINENTAL PRODUCES A "SIX"

Famous Motor Makers Finally Add One to Their Line—Cylinders are Cast in Threes.

Supplementing its introduction a little over two months ago of a new long-stroke Continental motor, the Continental Motor Mfg. Co., of Muskegon, Mich., has further increased the size of its line by the addition of a new "six" in two sizes and two styles which in structural detail is quite similar to the new four cylinder model. Though this is the first six-cylinder motor which this well-known company has produced for the market it savors not at all of the experiment inasmuch as the reputation of its producers is sufficient warranty that it has been thoroughly tested out and measures up to the high standard of merit which the

bearing surface obtained is greater. Regarding the number of bearings, it is interesting to note that but three are used to support the crankshaft, which construction follows closely the construction of the "fours" and permits of considerable weight reduction. As a matter of fact it is claimed for the new "six" that it is actually lighter per horsepower than the average four-cylinder motor.

Following the same general construction as is employed in the new four-cylinder motor, the valves in the "six" are arranged all on the same side, the valve stems and springs being enclosed by light metal plates. By way of insuring equal distribution of the gases, intake ports are cored in the cylinder castings, a short Y-shaped intake manifold serving as the connection for the carburetter. The crankshaft is drop-forged from a special grade of carbon steel, and because of its size, connecting rod bearings also are slightly larger than usual. Cooling is by centrifugal pump ex-



END AND SIDE VIEWS OF THE NEW CONTINENTAL "SIX"

Continental company has set for itself and which it has maintained.

The new motor has been developed with a view to supplying the demands of those who desire a "six" in which the principal features of previous Continental products are retained. Therefore, though the cylinders are cast in threes, their dimensions remain the same as those in the two sizes of the new four-cylinder motors. The stroke is $5\frac{1}{4}$ inches in both, the smaller cylinders measuring $3\frac{3}{4}$ inches bore and the larger ones $4\frac{1}{8}$ inches bore. As in the case of the new "four," the six-cylinder model is supplied either as a motor alone, or as a unit power plant, in which case the flywheel is enclosed and mounts a Raybestos-faced multiple disk clutch; the gearset provides three speeds forward and reverse, selectively obtained.

In casting the cylinders in threes several valuable features have been gained and not the least of these is that the motor is made short enough to fit comfortably under the average 40-inch bonnet. Also its shortness permits four point support, though to obviate the possibility of frame weaving causing damage, it is arranged to be supported at three points. Though the placing of the cylinders close together in this way reduces the length of the center bearing, the diameter of the crankshaft has been increased and the actual amount of

clusively, the water entering the jackets close to the exhaust valves and maintaining them at an even temperature.

The oiling system, also, is the same as is used on the new four-cylinder motor, two separate plunger pumps actuated by the crankshaft being used. One of them forces the lubricant directly to the helical timing gear train in the front of the crankcase and the other serves to maintain a constant level in the crankcase compartments; the main and auxiliary engine bearings are lubricated by splash as are the cylinder walls. All the oil is filtered after having been used and before it is recirculated. A conveniently located float indicator serves to register the amount of oil in the reservoir.

To Clean the Teeth of a File.

A file that has become so clogged with metal that it does not cut freely can be made to work properly by cleaning the teeth. Rub the end of a piece of wood across the file, in the direction of the teeth or "cuts," until the wood works to the bottom of the cuts and forces out the clogging metal. Some times wood will not do the work, but a piece of stout sheet brass, used the same way, will have the desired effect. Lead, solder, copper, aluminum and other soft metals quickly fill up file teeth. For lead and solder only old files should be used.

PROSECUTING SALE OF TRUCKS

Lack of Horse-Haulage Data Hard to Overcome—Figures and Methods That Are Brought to Bear.

There is a peculiar condition existing in connection with the motor truck business that is seldom met in other industries—at least in such marked degree. It is a condition which, to start with, militates against the sale of motor trucks, but which the dealer, with the acumen that is characteristic of his kind, actually turns to his own advantage and uses as a potent aid in placing trucks. To be specific, users of horse-drawn trucks seldom know, with any degree of accuracy, what they really pay for transportation—that is, the whole cost—and it is therefore difficult to convince them of the correctness of estimates showing the financial advantage of motor transportation.

In order to cast real light in that direction, the American Locomotive Co., builder of Alco trucks, just has established a motor truck cost bureau, at the head of which it has placed W. P. Kennedy, who is one of the most eminent transportation engineers in the country and has been identified with the automobile industry for twelve years. The comprehensive and detailed character of the company's plan is indicated by the fact that in its offices are card indexed all the horses on Manhattan Island, numbering 71,151. Realizing that though the last cent of the cost of running other departments is known, probably less than one per cent. of business houses know exactly what their horses cost them, and that the only way to find out is to put trained cost accountants to work, the company offers to compile for prospective truck purchasers complete transportation costs, going into all details. Route diagrams, vehicle movement records, time schedules, time lost, life of horses, will be properly worked out and the whole made into a chart that can be read at a glance. The comparison between horses and motors is then easily made, and it is stated that the saving it is possible to effect runs all the way from 15 to 40 per cent.

It is of course understood that the work is undertaken solely with the idea of selling trucks if their use can be shown to be advantageous and in order to make the work count as much as possible, considerable care has to be taken to avoid spending time and labor on those who have no real intention of purchasing cars. In this, as in other fields, there are not lacking those who would be glad to obtain the services of expert accountants without cost to themselves by refusing to buy machines, regardless of the result of the accountants' work. The Alco staff has found several such instances of merchants who ultimately were

interested or anxious to discover exactly what horse-haulage was costing them.

The Packard Motor Car Co., in prosecuting the sales of its trucks, goes about the matter in a somewhat, but not wholly, similar way.

"If you will tell us how much it costs to feed a horse, how much to stable him, how much to doctor him and how much to keep him in shoes and harness," says the Packard Company "we will tell you how much it costs to operate a Packard truck.

"We have figures showing costs of hauling by horses. They may not be the same as your costs. We have figures showing costs of hauling by Packard trucks. They might not fit your case.

"Among four cartage companies in Detroit the lowest cost of shoeing per team was \$54, the highest, \$77.50; the lowest veterinary cost \$12, the highest \$20; the lowest wagon and harness repair cost \$24, the highest \$100. Horses can be purchased at all kinds of prices. Stabling cost varies with localities and conditions. Fixed charges vary accordingly.

"Horses may be said to cost from four to seven dollars a day in ordinary localities; a Packard truck from eight to twelve—approximately twice.

"The truck can do the work of at least three teams if the hauling conditions are arranged to give the truck a chance. Sometimes it does more; sometimes less."

As this involves the consideration of costs which vary greatly because of different localities, tables have been prepared giving the cost of operating horses and Packard trucks under fair average conditions. The Packard company figures that while it costs approximately twice as much to operate a Packard truck as it does a team, the motor will do the work of at least three teams, according to which method of calculating the machine is a sure winner under almost any conditions. More favorable comparisons are mentioned, such as a truck that displaced ten teams in hauling brick for road work, and another, in the service of a piano house, that displaced three horse wagons, and with each wagon a crew of four men. Still another case is cited where the use of a motor truck made possible the elimination of a branch warehouse, saving \$2,000 in rent and \$3,000 in wages.

Following is one of the tables prepared by the Packard company:

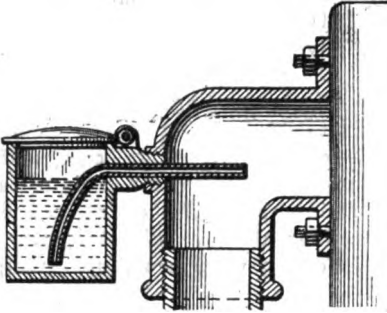
	One Truck	Three Teams
Amortization at 20 per cent. One truck, \$3,800, less \$295 for tires. Teams, seven horses at \$400, and three sets of wagons, harness, etc., at \$500, totalling \$4,300	\$701	\$860
Interest, at 5 per cent., computed for 5 years on amortized principle, averages, per annum....	105.15	129
Insurance, fire, collision and liability, which in New York City amounts approximately to 6 1/2 per cent. on an investment of \$3,800	247	*
Feed—estimated	1,000	1,500
Gasolene—based on 5 miles per gallon, 50 miles per day, 15 cents per gallon.....	450	.....
Lubricant—based on 120 miles per gallon of cylinder oil, at 44 cents, plus \$25 for greases, etc.	80	.....

Tires—based on \$.036 per mile, according to tire company guarantees	540	.....
Repairs—estimated	350	225
Veterinary—average .....	.....	61.25
Shoeing—average .....	.....	220
Stable—guess	200	500
Drivers—truck, one; teams, three	1,000	2,340
Total, per year.....	\$3,673.15	\$5,835.25
Total per working day—300 to year	\$12.25	\$19.45

* Not insured.

Priming Cup That Comes from Kansas.

Departing radically from the usual type of priming cup, the Hagstrom Bros. Mfg. Co., of Lindsborg, Kansas, have put upon

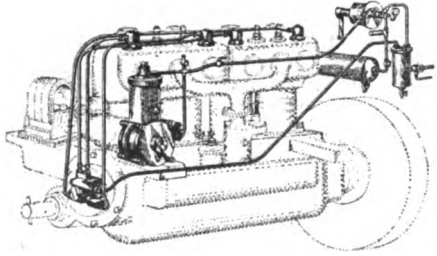


the market a priming cup embracing an entirely new principle, the gasolene being sucked into the manifold instead of being forced into the cylinder by gravity.

The device, which consists of a brass fuel chamber fitted with a tight cover, has a duct to conduct the gasolene; instead of being placed upon the cylinder, gravity being relied on to feed the charge in a liquid state, as in the ordinary priming cup, it is attached directly to the intake manifold, the partial vacuum formed when the engine is cranked being utilized to draw the fuel through a vaporizing nozzle into the manifold, where it mixes with the air drawn through the carburetter, and is conducted as a gas to the cylinders. One turn of the crank, it is claimed, is sufficient to start the motor on the coldest day, quite a contrast to the ordinary cup, with which it is first necessary to turn the motor over slowly to allow the gasolene to enter the cylinder, then a couple of times more to mix it with the required amount of air requisite to produce an explosive mixture.

English Idea of an Engine Starter.

According to all reports, the automatic starter movement which is so much in evi-



dence in the United States, has not attracted much attention abroad—at least not to the extent of developing starters in the way they are springing up here. Occasionally, however, some enterprising inventor

puts his ideas on the subject into concrete form, and one starter, brought out in Westminster, England, by A. A. Christensen, is illustrated by the accompanying line drawing.

Evidently it was Christensen's plan to combine two methods of starting in a single apparatus; for his device not only provides for the compression and storage of air, at a pressure sufficient to turn over the engine, but he also passes the air through a surface carburetter, charging it with sufficient gasolene to form an explosive mixture. The result is that there is no delay in filling the cylinders with gas that can be ignited, and starting should occur promptly and without much "spinning" of the motor by pressure of air.

The system includes an air compressor driven by the engine, an air tank of comparatively small size—8 inches in diameter and 20 inches long—a surface carburetter through which the air passes on its way to the engine after it leaves the tank, a rotary air-distributing valve and a control lever. There is no automatic control of the starter, everything being done by manual operation of the control lever. Only pure air is pumped to the tank, so that tires can be inflated.

Graphite Paste to Prevent Carbon!

Although the anti-friction qualities of graphite and its resistance to high temperatures are well known, it rarely is used as a cylinder lubricant for gasolene engine cylinders, largely because of the danger of short-circuiting the spark plugs, graphite being a comparatively good conductor of electricity. Fears for his spark plugs, however, apparently did not trouble the mind of a foreigner who had experienced the evils of carbon in the cylinders of his motor, and who evolved a method of prevention that worked to his own satisfaction at least. "I carefully cleaned the combustion chambers and the tops of the pistons," he says, "and coated them with graphite and gasolene made into a paste and well rubbed in. After running the car some 9,000 miles I examined the cylinders and piston heads, and found no carbon whatever. While my motor is water cooled, I can see no reason why the same plan would not work satisfactorily in air cooled cylinders, some of which, I understand, become carbonized after being in use for a comparatively short time."

Radiators Sometimes Too Efficient.

At this season of the year it is as well to bear in mind that the radiator of a motor car is designed primarily as a means of getting rid of heat in the quickest possible way. In other words, it will become cold in a remarkably short time if permitted to do so, and will continue its efficient heat-radiating action until the temperature of the water is the same as that of the air. If the air happens to be below the freezing point something is likely to happen.

EMPLOYEES CAN DRIVE TRADE CARS

New York Magistrate Makes a Far-Reaching Ruling—Apparent Conflict With Official Definition of "Chauffeur."

The question—and it is one which has agitated New York automobile dealers for the past year—as to whether or not employees of a corporation having a general license have the right to operate cars belonging to such corporations without obtaining special licenses, has been decided in favor of the automobile companies, by at least one judge, but as he merely is a local magistrate his ruling does not go far or carry great weight. The opinion was rendered by Magistrate Murphy in the Jefferson Market Court and holds that an employee of an automobile manufacturer or dealer has the same rights to operate their cars as the officers of the company—provided he is acting in the interest and on the order of such officers. The law covering the point says: "The term 'chauffeur' shall mean any person operating or driving a motor vehicle as an employee or for hire." This would imply that each employee is a chauffeur.

The whole question was brought into court by the United States Motor Co., in the nature of a test case. Howard J. Rogers, a shipping clerk, employed by the company, was driving a car ordered by one of the company's customers, to the pier for shipment. The police arrested him, taking the position that a general license to a motor manufacturer or selling agent did not give employees the right to operate cars. Hundreds of fines had been imposed by magistrates before this test case was made. Henry D. Merchant, counsel for the United States Motor Co., undertook the defense of Rogers.

"An officer of the corporation could have proceeded unmolested," said he. "Why not the shipping clerk in the performance of his duties under instructions from an officer, so long as he was not employed in the particular capacity of a chauffeur?"

He argued that the Callan law could not have intended to license a corporation and then restrict it in the operation of its cars to officials and licensed chauffeurs.

"It would have been easy for the Legislature," said he, "to have stated in unequivocal terms that every employee or agent or servant of an individual owner or corporation must be licensed as a chauffeur in order to be permitted to drive upon the highway if that had been intended."

Magistrate Murphy upheld this view.

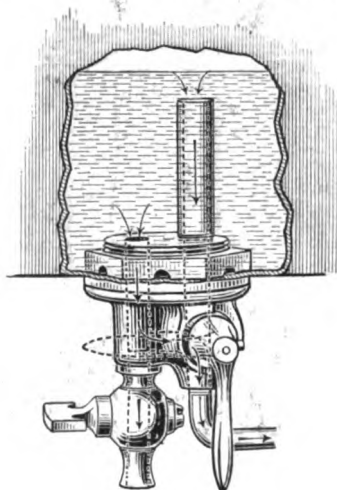
Where Motor Cars Must Have Horses.

Denmark usually is given credit for being a rather progressive country, but that there are some parts of it in which it almost is a crime to be "modern" amply is proven

by the regulations of the small town of Otter, a place of some 4,000 inhabitants. Motorists passing through the streets of this reactionary town must procure a horse to draw their cars while within the confines of the city limits, and those guilty of violating this restriction are heavily fined.

Sentinel That Guards Gasolene Supply.

Attacking the problem of providing a gasolene reserve for emergency use in a manner different from the well-known and obvious instalment of a separate tank, the Sentinel gasolene tank alarm, which is manufactured in Germany and marketed in the United States by Zwilling & Feldman, of 560 West 171st street, New York City, has several unique features. It is designed not only with a view to give the motorist due warning as soon as his gasolene supply falls below a predetermined limit, but it also acts as a preventive



against theft or loss of fuel by mischievous persons.

The device, which is shown in the accompanying illustration, consists of a standpipe, screwed into the bottom of the tank and extending about two inches upward from the bottom into the fuel. The gasolene flows through this standpipe until its level is even with the upper end of the same, when the flow is interrupted and the motor brought to a stop. In order to restart the engine the driver must leave his seat and turn the valve at the bottom of the standpipe, as indicated by the dotted lines, thus causing the remainder of the gasolene to flow out of the lower outlet. The stopping of the engine gives the driver due notice that his gasolene supply has fallen below the limit and allows him to replenish his supply without being subjected to vexatious delays. The quantity held in reserve may be adjusted according to the fuel consumption of the engine.

The device, which is furnished either with handle or key, also serves as a protection against theft or loss of fuel caused by opening of the valve on the part of mischievous persons, inasmuch as the entire supply can be stopped until unlocked by the key.

"DOING BUSINESS BY THE MILE"

Some Phases of Taxicab Operation That Are Not Generally Known—How Telephone Reduces the "Idle Time."

One of the problems confronting the officials of taxicab companies is that of keeping their vehicles busy throughout the day instead of having them rushed with work at certain periods—usually from 4 P. M. to midnight—and at other times mostly idle.

"There is money in it for the chap who can show us how," said John W. Weibley, manager of the Pittsburgh Taxicab Co., in discussing the subject, and he went on to point out how a telephone service that the company maintains had at least partly solved the problem.

"You see," he continued, "we have our own 'peak loads,' the same as in the telephone or telegraph services. Of course, the reason for this is simple enough. You can't take people to the theaters, the restaurants or the lecture halls in the morning. If you could change American daily life in this respect and the present evening usage were maintained, our existence would be the happiest sort of an arrangement."

Time is the paramount factor in all of the taxicab problems. As the consumption of time decreases, the number of problems becomes smaller. For example, it would never do to let each driver return to a dispatcher's station when a fare could be picked up along the way. Each empty taxicab traveling to and fro means a cost of 31 cents for each mile so traveled. So the telephone is arranged to flag the driver who is out in the suburbs. It enables him to pick up a fare in the locality, and the empty hauls at 31 cents a mile are reduced and almost eliminated.

"Pittsburgh's topography is ideal for the taxicab business," said a taxicab man. "In fact, the city is really three towns in one. Most of the hauls are confined to each locality, and the long money-losing trips are eliminated."

The sections to which Mr. Weibley referred are the East End, Down Town and the North Side. This bit of geography was taken into consideration when the taxicab concern's telephone plant was arranged.

The Pittsburgh Taxicab Co. has 25 Bell telephones and 21 of them are taxicab stations, from which dispatching is done. Three trunk lines connect the company's private branch with "Hiland," the East End exchange. There is a tie line that connects the private exchange with a small board at the Fort Pitt Hotel. From the Fort Pitt direct lines connect with down town taxicab stations at theaters, hotels, office buildings, etc.

The East End being a residential section,

no difficulty in dispatching is experienced. Calls are naturally sent to the company's office and garage, which is situated in the center of this section. But it was in this part of the city that for some time long hauls without passengers made big leaks in the revenue. The management found the answer a few months ago. The trouble arose from the inability to flag cars in the residential outskirts. So a Western Electric police telephone was placed at Shady and Northumberland avenues, and another at the corner of Murry and Forbes streets. These intersections are quite a distance from the garage and Rittenhouse stations and effectually shut off the empty haul.

When the police sets were placed in operation, each chauffeur was given a key and instructed to make stops at these stations. If the driver's services are needed in the immediate neighborhood, he is dispatched.

In the old cab and hansom days, costs were not considered as in these times. Quite obviously it takes more training to steer an automobile successfully than it did to pilot a cab horse. Naturally a higher class of men is employed to do the work. The old-fashioned cab man did about as he pleased, but the taxicab chauffeur is under check each minute of his working day. The checking is accomplished in a large measure by means of the telephone.

Suppose a driver leaves the garage at 6:20 P. M. His destination is the Frick building, a distance of four miles from the garage. This man's departure and the reading of his taximeter are noted at the garage. When the four-mile trip is completed, he steps to the Frick taxicab station. Then the attendant calls up the garage and compares notes. If two hours have been consumed, the taximeter registers 20 miles and the chauffeur has only \$1.75, there is something wrong and the management learns the reason in very short order. The taxicab people study their business day and night, Sundays and holidays. As a result, telephone service is used efficiently, not needlessly.

"We aim to be paid reasonably for every single mile covered," is the way Manager Weibley introduced the subject of efficiency. "Everything is figured on a mileage basis, even our executive salaries. We are doing business by the mile in every sense of the word.

"Our taxicabs are being repainted and a gray color is being substituted for black. This is not alone for artistic reasons. Through painting a cab for the Hotel Schenley, we found that it was easier to keep a yellow body clean. Since that was true, gray would be still easier, so we are changing all of the machines.

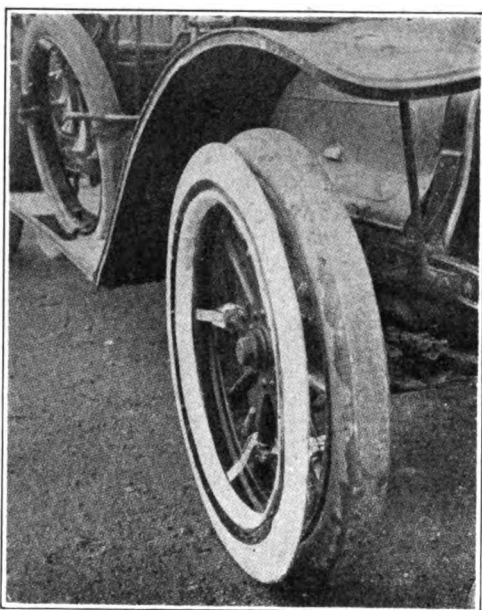
"Whenever a driver tells us that he can't get 15 miles per gallon out of his machine, we simply give him some other man's car. Then if he fails to get the 15 miles, we know it is the man who is at fault. Forty-five machines running day and night, 365

days in the year, use a lot of tires. The taxicab company buys its tires by the mile and our contract is made at so much a mile. The contractor vulcanizes cuts when they first appear, then shifts from rear to front wheels in such a way that the tires average 4,500 miles, while the initial guarantee is for 3,500.

"You can see that our use of the telephone is in line with our other practices. Whenever there is anything that will save time, we do not hesitate to adopt it; for time is money in our business in every sense of the word."

To Save Pedestrians from Mud Splashing.

Following a number of law suits and an agitation to compel owners of public service motor vehicles, at least, to equip their



FRENCH AUXILIARY MUDGUARD

cars with mudguards of such form that mud or water cannot be splashed on pedestrians, the French Compagnie Generale des Omnibus has introduced such a device in Paris and in the future it will be used on all the vehicles operated by that company. In Belgium there recently was passed a law making compulsory the use of some such device and in view of the fact that a similar law is expected soon to be passed in France, the action of the French omnibus company in forstalling it is interesting. The mudguard itself, as may be seen in the accompanying illustration, is nothing more nor less than a slightly hollowed rubber ring which is attached to the spokes of the wheel by means of six bolts. In position it is parallel to the wheel and about three inches distant from it. It is quickly and easily attached or detached, and it is claimed that the splashing of mud and water is effectively prevented.

Public Touring Service on Pacific Coast.

Carrying out its announced intention of utilizing the 40-horsepower Garford tour-

ing cars which were used for public touring service in New England during the past summer and which conveyed a party from the Atlantic to the Pacific on the first "pay-as-you-enter" automobile transcontinental party ever organized, the Raymond & Whitcomb tourists' agency, of New York, has inaugurated a passenger service between San Francisco and Los Angeles. This service is to be continued during the winter and anyone who has the price of the required ticket may enjoy the pleasures of an automobile trip between the two great California cities, without going to the trouble of purchasing or hiring an entire car. Seats will be sold just as they were sold many years ago for the famous coaches of the West, and as they now are sold for Pullman cars on the modern railroads. The new service will be conducted according to printed time tables.

Austria to Squeeze Visiting Tourists.

Owing to the storm of protest which the proposed "upward revision" of the license and registration fees for automobiles in Austria-Hungary has raised in the dual monarchy itself and in other countries of Europe, the Reichsrat has taken the schedule under advisement once more and has made substantial changes. While in the schedule first submitted, which was published in a recent issue of the Motor World, the big cars were taxed most heavily, in the revised list the small cars are "boosted" and the "foreigners" are treated worse than ever, the latter being compelled practically to take out a full year's license for a mere visit to the land of Francis Joseph.

The new schedule provides the following licenses fees:

Motorcycles	\$ 2.25
Motor Side Cars	6.75
Electrics	45.00
Gasolene—	
General tax for all cars	\$13.50
Additional tax per horsepower in	
Cars up to 10 H. P. . . . .	.90
cars from 11 to 20 H. P.	1.35
cars from 21 to 30 H. P.	1.80
cars from 31 to 40 H. P.	2.25
cars from 41 to 50 H. P.	2.70
cars from 51 up	3.15

According to this schedule an American tourist desirous of motoring in Austria for a month or two with a car of 60 horsepower would have to pay a fee of 900 Kronen, or \$202.50.

"Bliss" Was Duby; Gets Two Years Penalty.

Theran S. Duby, registered racing driver No. 49, has been suspended for a period of two years by the A. A. A. Contest Board for using a false name and for participation in an unsanctioned race meet at De Witt, Iowa, on Sept. 15th, last. Duby confessed that he had raced under the name of "Bliss." His sentence will expire December 14, 1913. C. D. Kemp, driver No. 399, has been given six months for participation in an unsanctioned meet at Madison, Wis., on September 24th. His suspension will expire June 14th next.



997,469. Automobile Number Displaying Device. Frederick Robinson, New York, N. Y., assignor to Sure Number Lamp Company, New York, N. Y., a Corporation of New York. Filed Feb. 11, 1910. Serial No. 543,329.

1. In an automobile number display device, the combination with a box, of a transparent plate dividing the same into two compartments, the front wall of one of said compartments having an opening covered by a colored transparent member, and the front wall of the second compartment being provided with openings representing numbers and characters, a translucent plate covering the openings in said second compartment, a parabolic mirror in said first compartment, a source of light located in the same compartment and in the focus of said parabolic mirror, a plurality of reflecting surfaces in both compartments co-operating with said parabolic mirror to reflect the light upon said transparent member and said translucent plate, and a shield in said second compartment arranged at an angle to the surface of said translucent plate, and adapted to cut off the direct rays of said source of light from the portion of said translucent plate adjacent to the shield.

997,497. Automobile Storage Jack. William H. Hattel, Kalamazoo, Mich. Filed May 1, 1911. Serial No. 624,429.

1. In an automobile storage jack, the combination of a base having three projecting members; double angle uprights projecting therefrom and curved at top to engage a suitable handle; a cross-head having arms adapted to be adjustably secured to said uprights by means of bolts; a vertically reciprocating plunger provided with a saddle, said saddle being provided with a pad to prevent marring the hub, said plunger operating in a sleeve secured to said cross-head; a cam rotatively secured to said cross-head beneath said plunger and adapted to raise said plunger when said cam is rotated; limiting stops secured to said cam and adapted to engage opposite sides of said cam and retain it in either its up or down position, and a lever secured to said cam in such a position that its weight locks and holds said cam in either its normal or raised position, substantially as shown and specified.

997,561. Automobile Construction. William Kelly, Detroit, Mich., assignor to Everett, Metzger, Flanders Company, Detroit, Mich., a Corporation of Michigan. Filed Sept. 28, 1908. Serial No. 455,032.

1. The combination of an engine having a crank case and having an opening for the main shaft in the end of said crank case, a main shaft passing through said opening, a part constituting a bearing for said main shaft fitting into said opening, a bracket having an aperture therein, the wall of said aperture being adapted to fit around said bearing part, and means for securing said bracket to said crank case.

997,573. Roller Bearing. Onesime E. Michaud, St. Louis, Mo. Filed May 2, 1910. Serial No. 558,954.

1. A roller bearing comprising a cage sleeve having an annular series of openings

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FOR SALE—65 shares United Motor (Rutherford Rubber Co.), 7% cumulative preferred. **LEWIS W. BROWN, Englewood, N. J.**

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therein, rollers fitted loosely in said openings and having reduced end portions, and retaining bands fitted on the outer side of said cage sleeve so as to be normally stationary but adapted to be rotated thereon and having their inner edge portions notched and arranged to overhang the reduced end portions of the rollers, whereby said rollers are normally retained against removal outwardly from the respective openings in said cage sleeve.

997,585. Differential Hub. George W. Stanley, Logansport, Ind., assignor of one-eighth to Zachra Taylor, Daws Taylor, Clark M. Taylor, and Joseph Taylor, and one-fourth to E. D. Morgan, Logansport, Ind. Filed Aug. 24, 1908. Serial No. 450,049.

1. The combination with a power axle, of a collar fixed upon said axle provided with oblique recesses or grooves forming shoulders and anchor shaped points, said collar being provided with an oblique recess or groove connected to one of the first mentioned recesses or grooves by a diagonal bore a ball mounted in said recess or groove, an idler mounted in the other recess or groove and a hub provided with a fluted box mounted on said collar adapted to be locked in position to be driven forwardly or backwardly by the live ball.

997,606 Differential Gearing for Automobiles. John Demmler, Lansing, Mich. Filed Aug. 22, 1910. Serial No. 578,275.

1. The combination of a driving shaft, a beveled gear wheel on said driving shaft, a differential gear casing, a beveled gear wheel on said casing engaging the beveled gear wheel on said driving shaft, a stationary cylinder coaxial with said gear casing and provided with screw threads, a cup provided with screw threads engaging the screw threads on said cylinder, a bearing for said casing in said cup, and a thrust bearing engaging said cup and casing.

997,610 Process of Making One-Piece Radiator Sections. Frederick A. Feldkamp, Vailsburg, N. J., assignor to Electrolytic Products Co., a Corporation of New Jersey. Filed Sept. 15, 1910. Serial No. 582,110.

1. A process for producing hollow honeycomb one-piece radiator sections consisting in first preparing a core or pattern of a fusible metal with a series of openings, then producing electrolytically a first deposit of metal upon the outer face of said core or pattern and inwardly into the openings in said core or pattern, and then producing electrolytically a second deposit of metal into the interior of said openings and outwardly therefrom toward the outer surfaces of said core or pattern, and finally removing said core or pattern from said electrolytically deposited metal.

997,617. Differential Mechanism. Albert D. Gilpin, Lincoln, Kan. Filed Sept. 30, 1910. Serial No. 584,769.

1. A differential mechanism including a main gear wheel having drums upon its opposite sides, axle sections extending into the drums, pairs of oppositely formed ratchets carried rigidly upon the inner ends of the axle sections within the drums, rocking pins disposed within the drums and having offset pawls for alternate engagement with the ratchets, gears carried upon the inner ends of the axle sections, and yielding teeth carried in the outer ends of said rocking pins for engagement with said gears.

997,624. Rotary Power Muffler. George

Lewis, Brooklyn, N. Y. Filed Sept. 3, 1910. Serial No. 580,400½.

1. A rotary muffler for internal combustion engines, said muffler comprising a cylindrical casing, a rotary drum-shaped member mounted in said casing and around which is an annular chamber, said rotary member being open at one side, and the corresponding side of the main casing being provided with exhaust ports or passages and the opposite side of the main casing being provided with a radial passage which communicates with the interior of said rotary member and with said annular chamber, the interior of said rotary member being provided with radially arranged blades and the exterior thereof with transverse blades, and means for connecting the rotary member with a rotary part of the engine, and means for placing the annular chamber in communication with the exhaust of the cylinder of the engine.

997,636. Driving Gear for Vehicles. Clarence E. Patton, Cincinnati, Ohio, assignor to The Acorn Motor Car Company, Cincinnati, Ohio, a Corporation of Ohio. Filed Mar. 16, 1908. Serial No. 421,407.

1. In a friction gearing a longitudinally shiftable driving shaft, a friction wheel mounted on said shaft and provided with a wedge-shaped driving periphery, friction disks mounted on opposite sides of said wheel and provided with concentric V-shaped grooves adapted to engage the periphery of said wheel, means for simultaneously and yieldingly holding both of said disks in operative engagement with said wheel, means for moving said disks axially to disengage said wheel, and means for transmitting rotation in the same direction from said disks.

997,654 Steam Motor Vehicle. Louis Doillet and Paul Robert Faure, Paris, France. Filed Sept. 16, 1909. Serial No. 518,068.

A steam motor vehicle having its engine and boiler located side by side within the hood at the front end of the frame thereof, a radiator also located within said hood in advance of said boiler and engine and in pipe communication with the latter for condensing the exhaust steam flowing therefrom, a fan operated by said engine and interposed between the same and said radiator, said fan having its casing communicating with the combustion chamber of said boiler for supplying air thereto, and a direct shaft transmission drive from said engine to the rear axle of the vehicle, said shaft being located on the same side of the frame as the engine.

997,687 Pneumatic Tire Cover. Andre J. Michelin, Paris, France. Filed Nov. 16, 1910. Serial No. 592,690.

1. A tire cover for wheels with flanged rims, having embedded in said cover beads of relatively stiff but slightly flexible material; said beads comprising each a cover having a packing of resilient and textile material; and a reinforcing strand in said packing, said beads being elongated and tapering in cross-section and adapted to overlie the outer flange edges, as set forth.

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